

FIG. 1A PRIOR ART

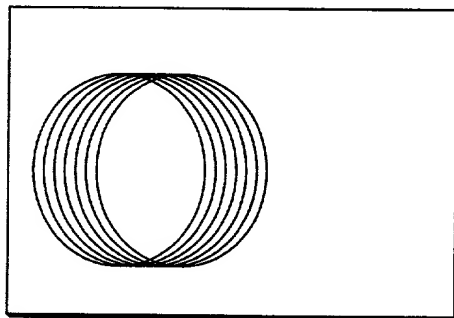


FIG. 1B PRIOR ART

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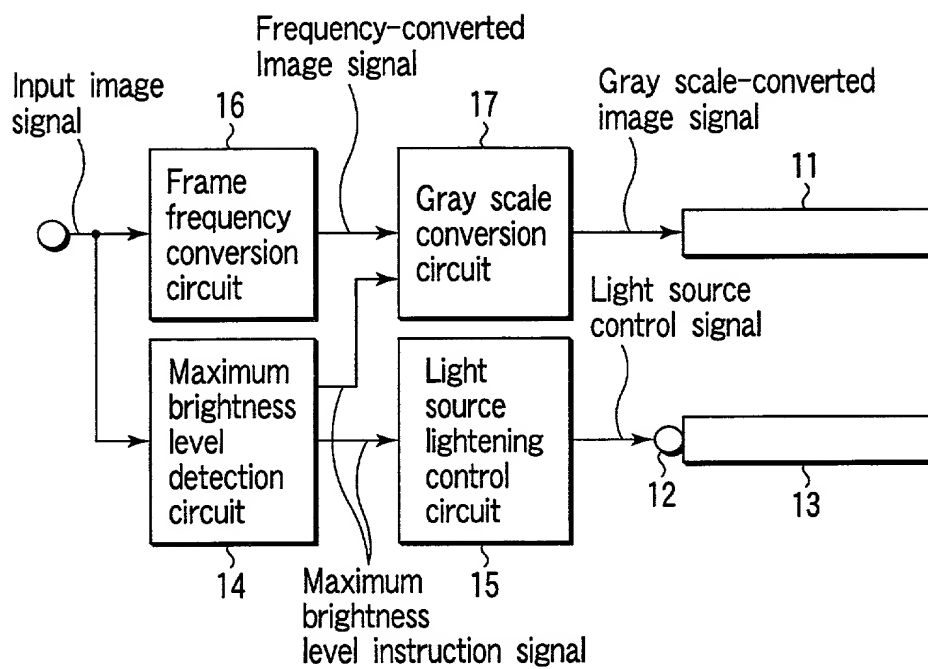


FIG. 2

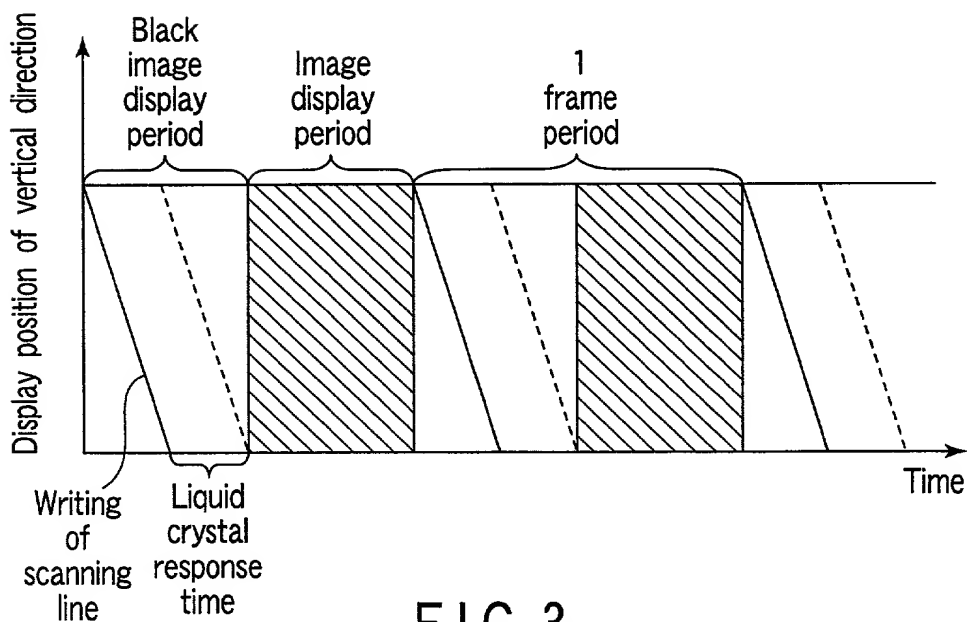


FIG. 3

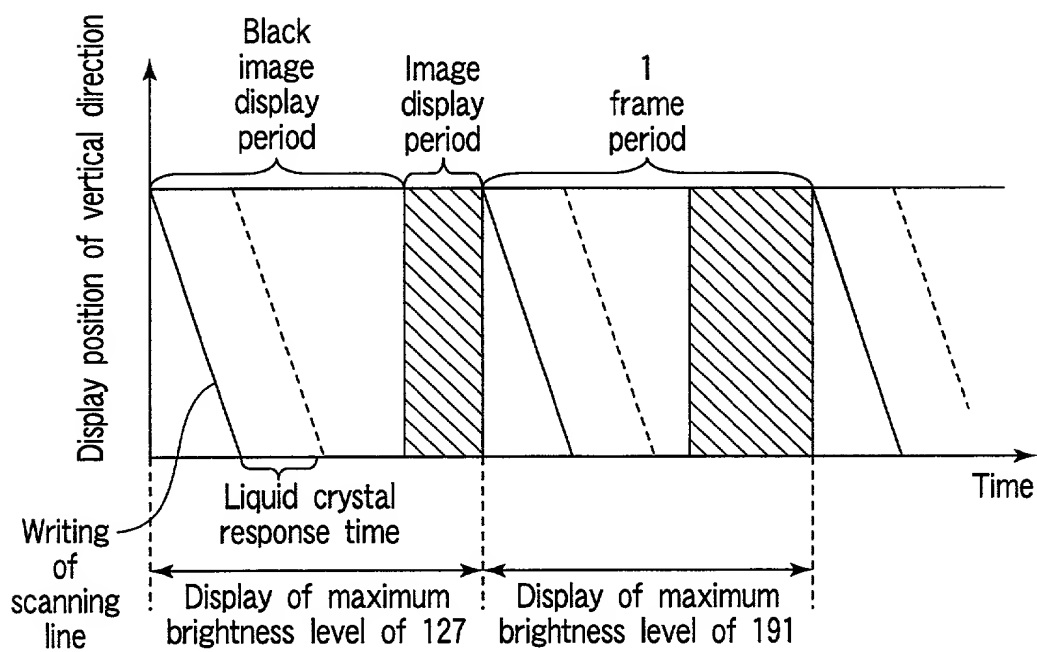


FIG. 4

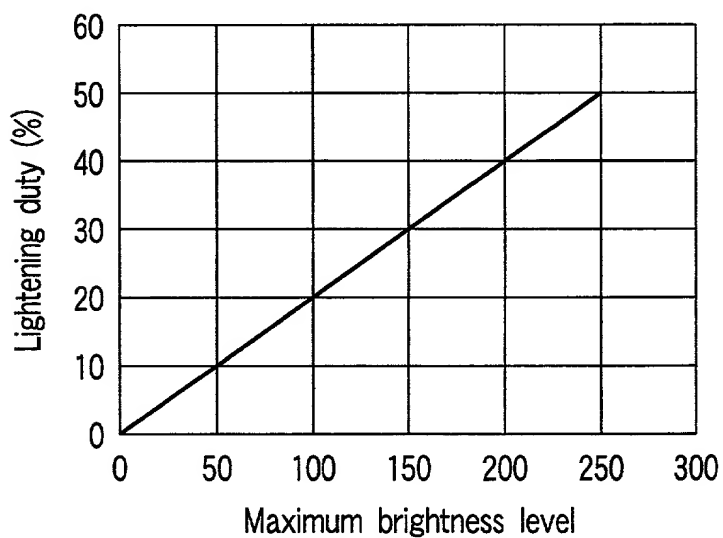


FIG. 5

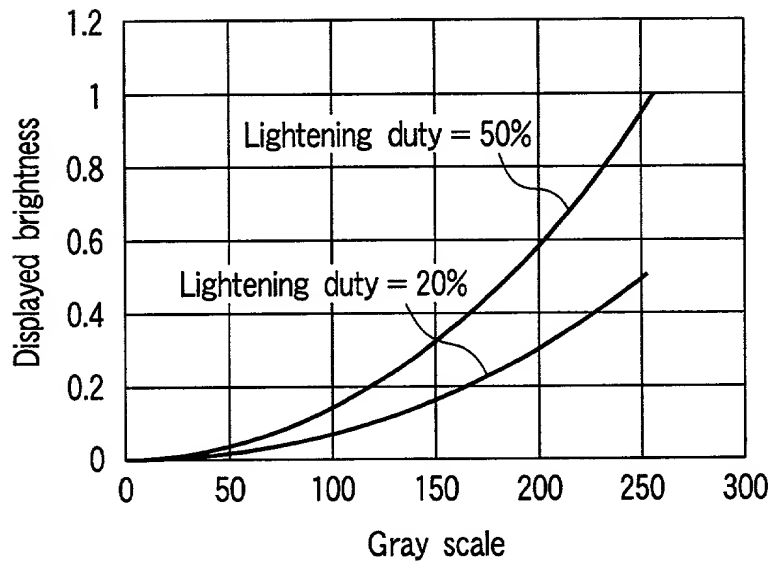


FIG. 6

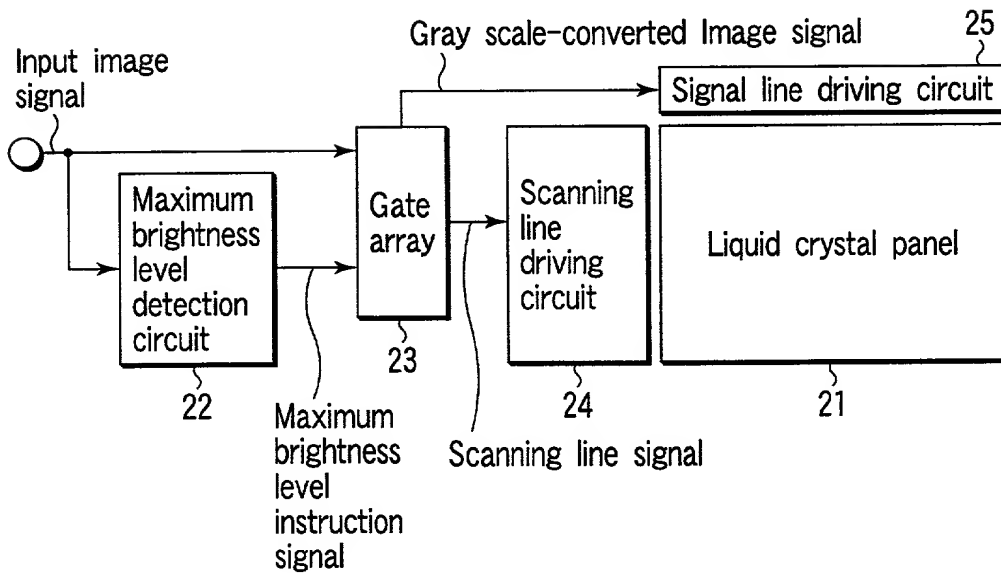


FIG. 7

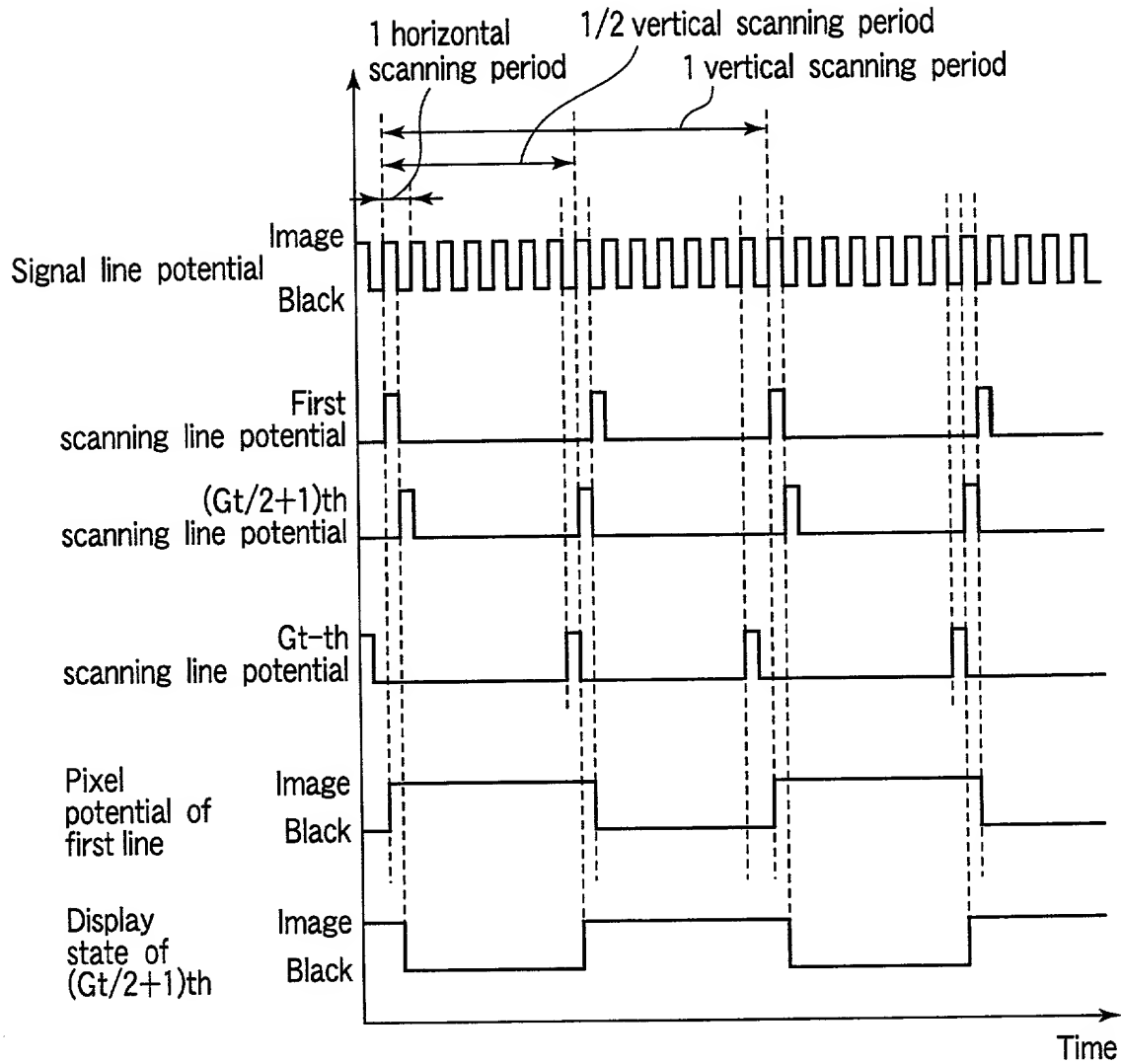


FIG. 8

FIG. 9A

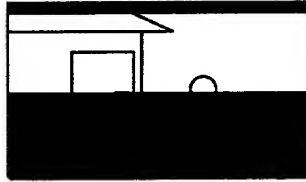
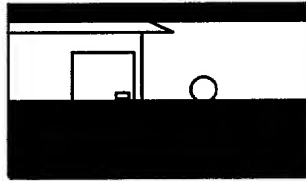


FIG. 9B



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FIG. 9C

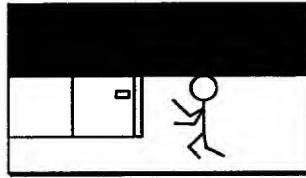
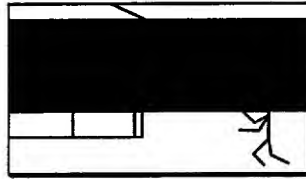
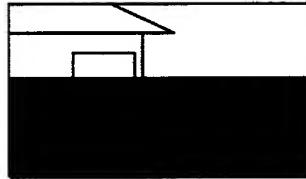


FIG. 9D



...

FIG. 9E



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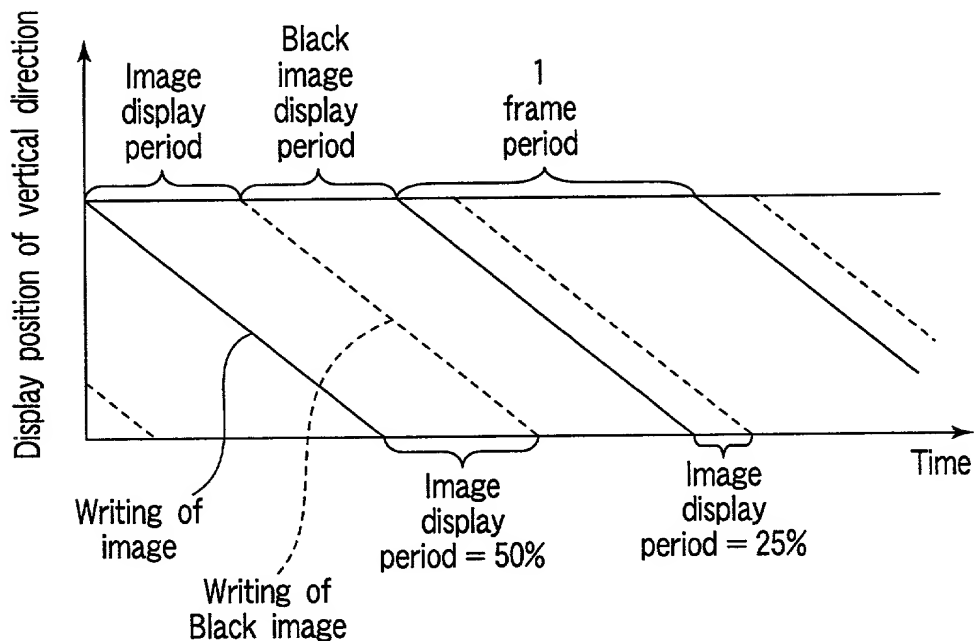


FIG. 10

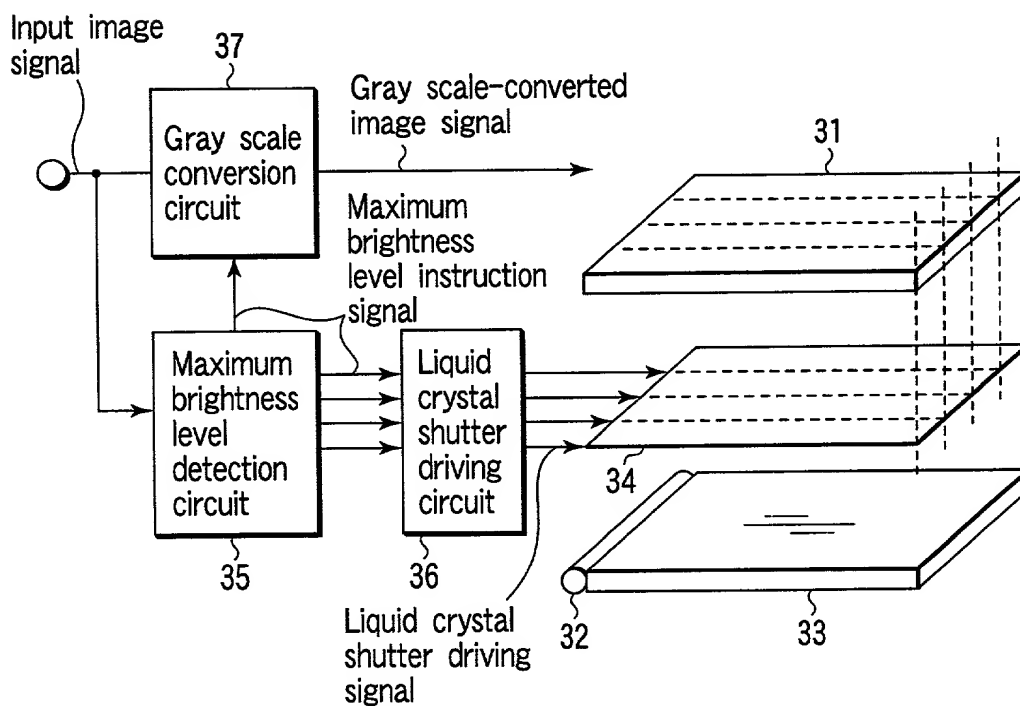


FIG. 30

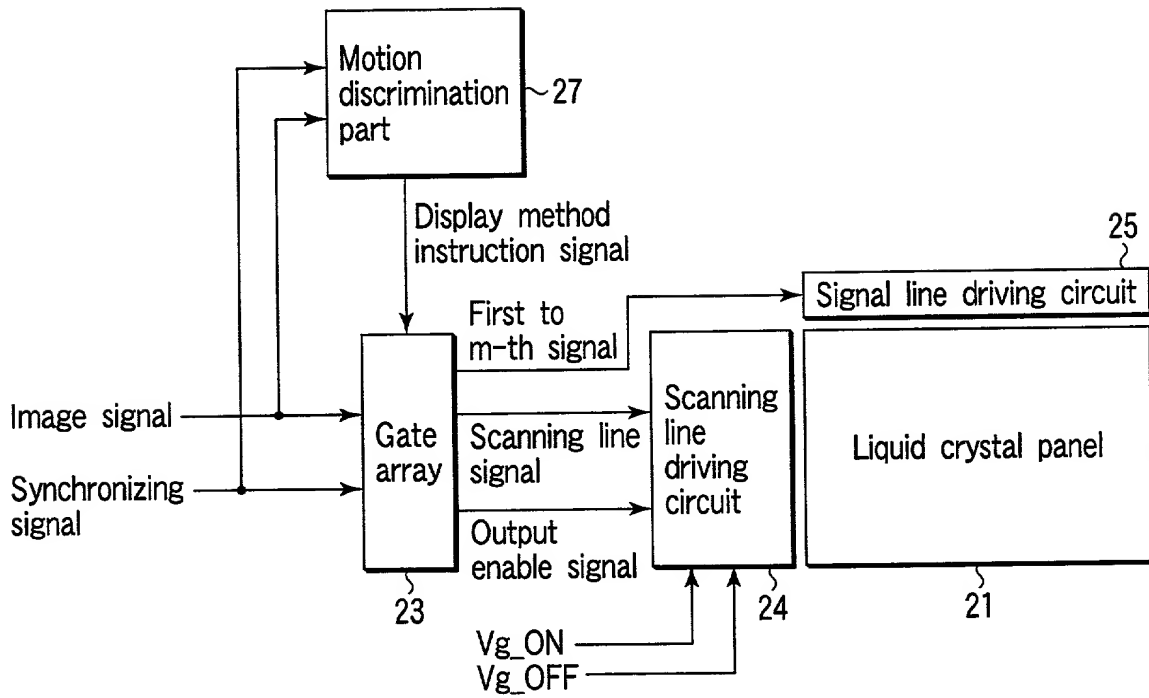


FIG. 11

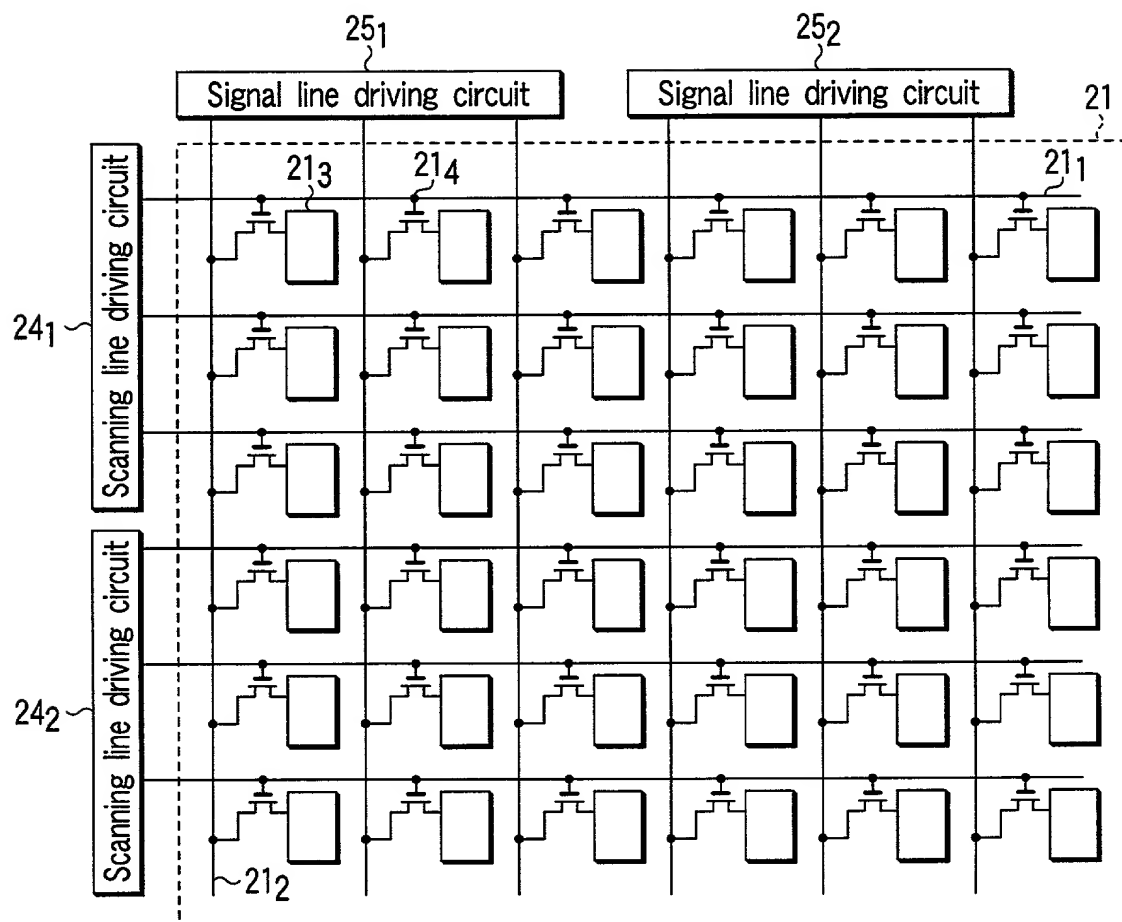


FIG. 12



Negative voltage

FIG. 13A



No-voltage

FIG. 13B



Positive voltage

FIG. 13C

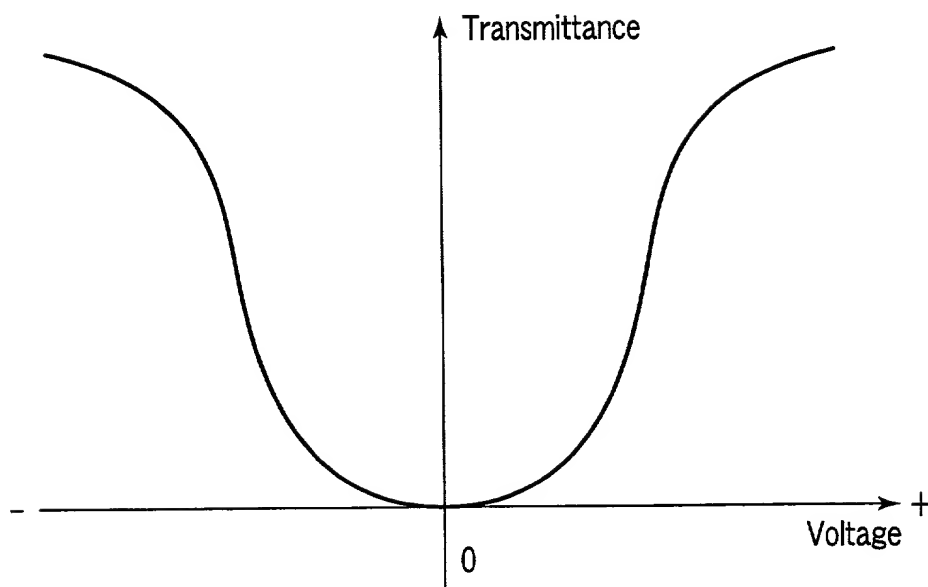


FIG. 14

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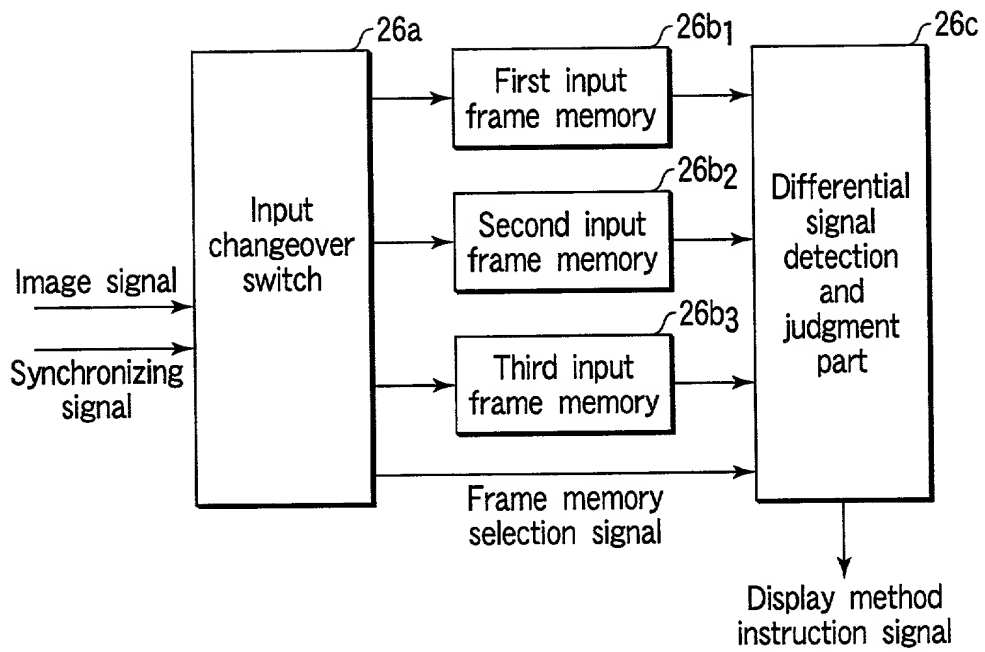


FIG. 15

FIG. 16A

FIG. 16B

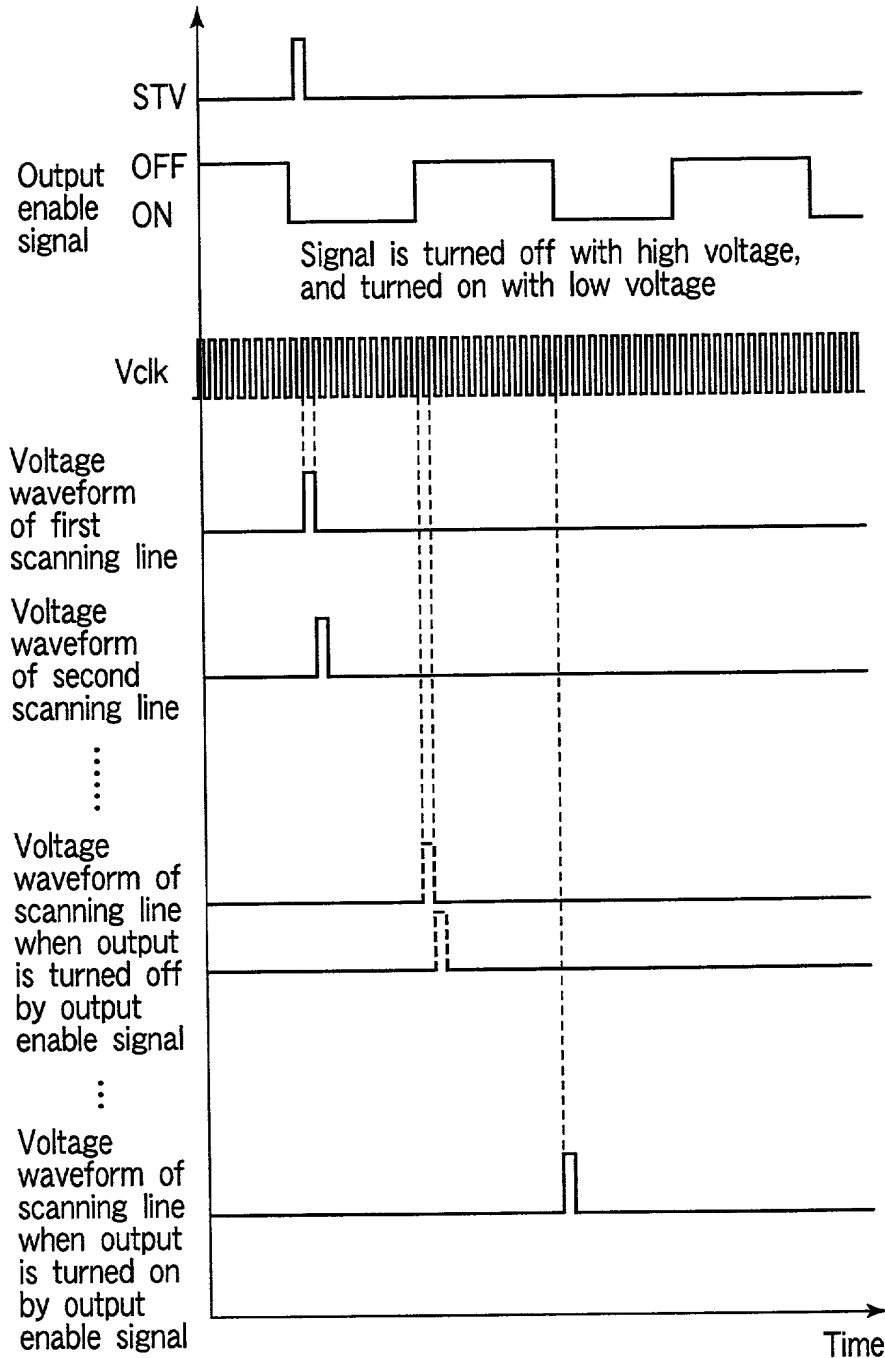
FIG. 16C

FIG. 16D

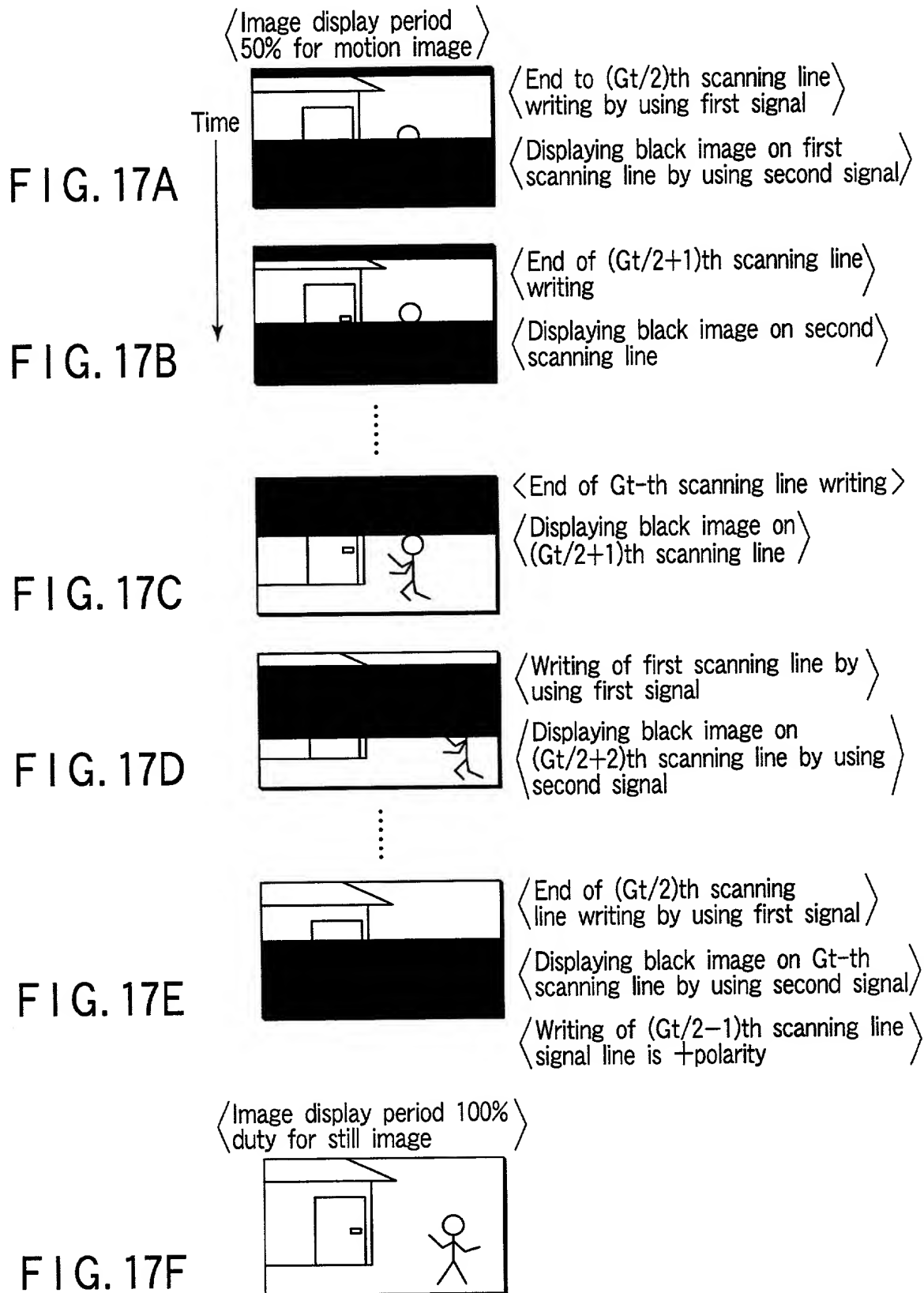
FIG. 16E

FIG. 16F

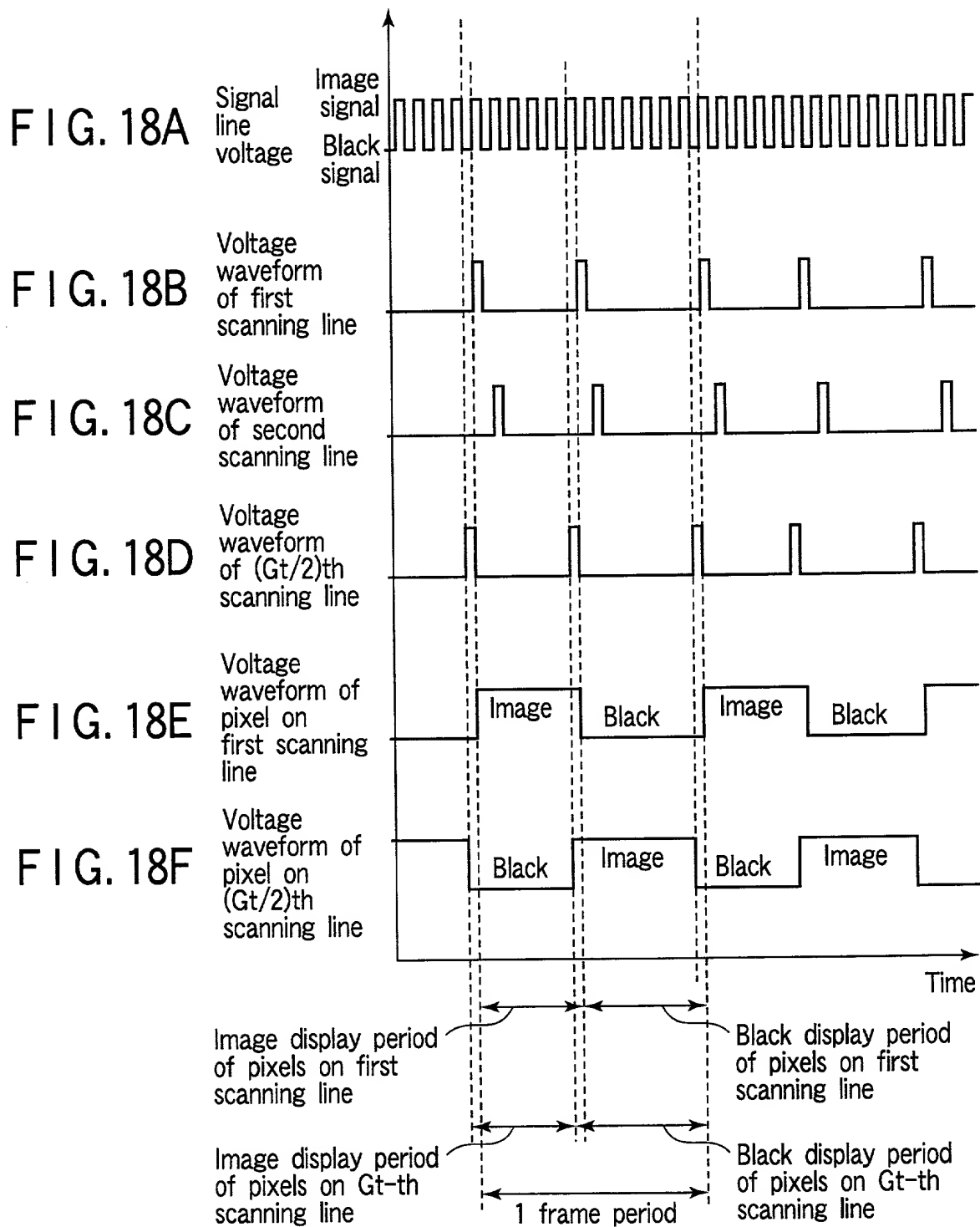
FIG. 16G



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Relation between number of scanning lines,
adjustment accuracy, and minimum duty

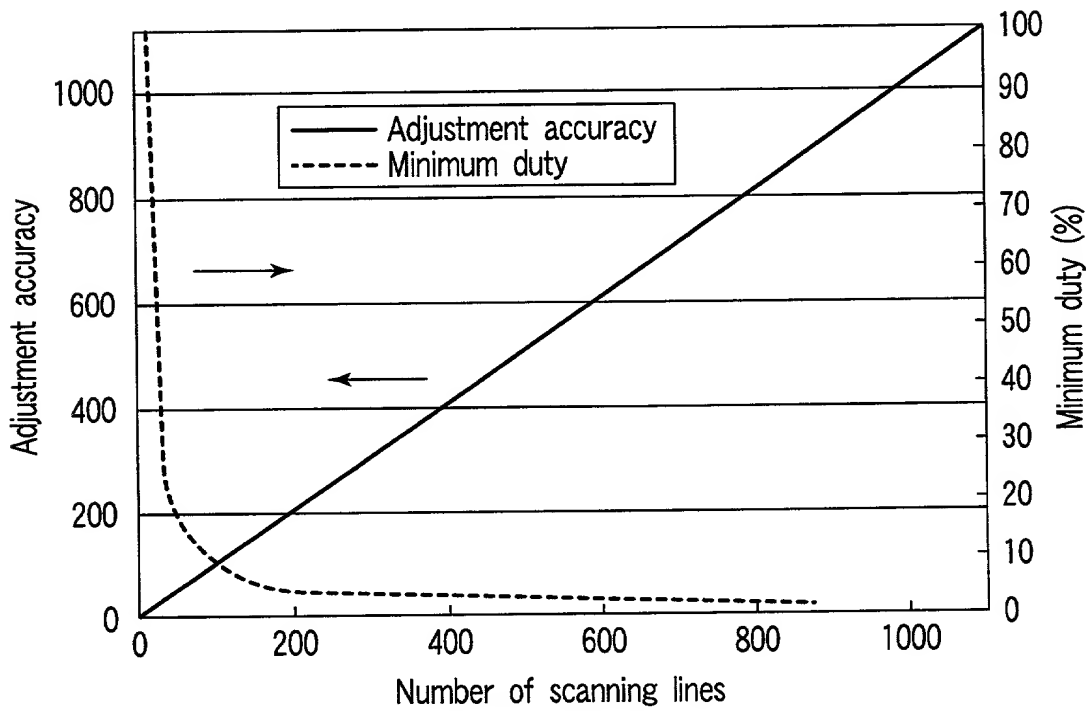
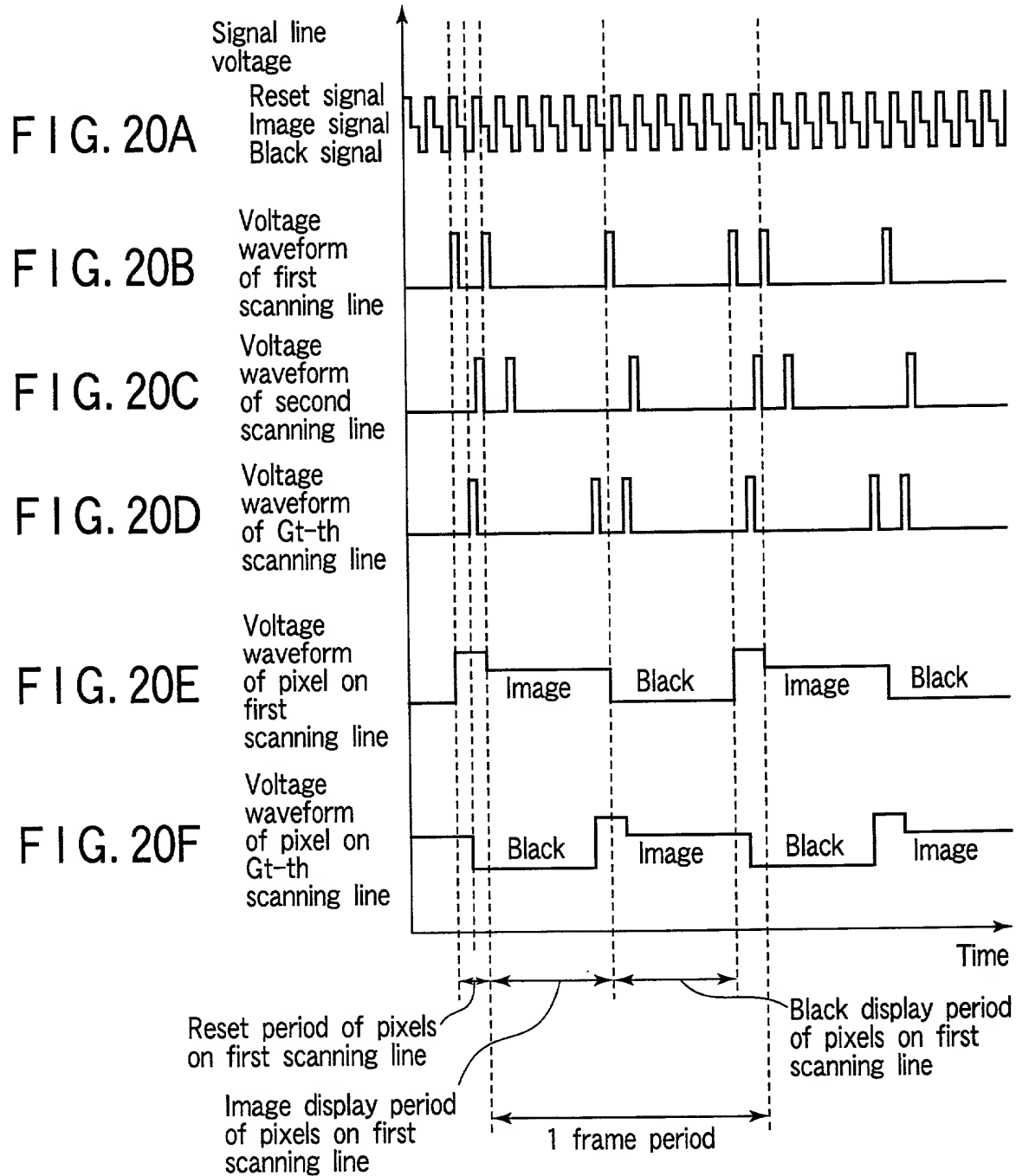


FIG. 19



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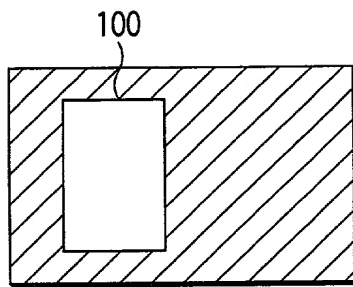


FIG. 21A

White square box moves
from left of screen to
right thereof at high speed

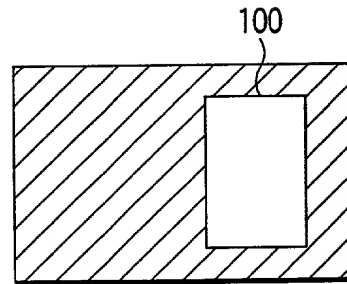


FIG. 21B

Line sequential processing
when creating screen and
plane sequential processing
when displaying image

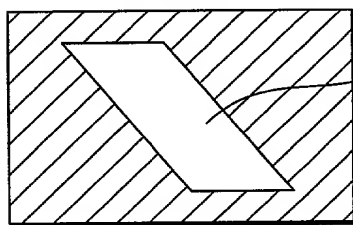


FIG. 21C

Creation time is different at an upper and lower
side of screen.
The image is created when moving body exists in
left side at upper side of screen, and the image is
created when moving object is moved to right while
going under the screen

plane sequential processing
when creating screen and
line sequential processing
when displaying image

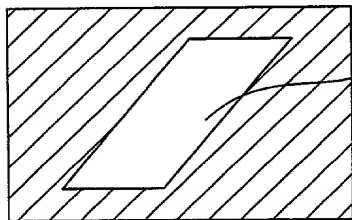


FIG. 21D

Creation time is same at an upper and lower screen.
Display timing difference occurs because scanning is
performed from upper to lower screen sequentially

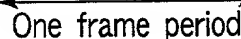


FIG. 23A

<First sub-field>

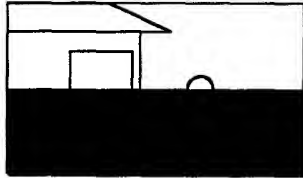


<Writing first signal to pixels on
first to $Gt/2$ -th scanning lines>

<black display for backlight OFF>

FIG. 23B

<Second sub-field>



<Writing end of first signal to pixels
on first to $Gt/2$ -th scanning lines>

<Writing black display signal to pixels
on $(Gt/2+1)$ th to Gt -th scanning
lines>

<Backlight is turned on and imaged
is displayed>

FIG. 23C

<Third sub-field>

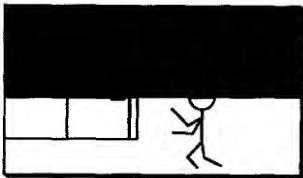


<Writing first signal to pixel on
 $(Gt/2+1)$ th to Gt -th scanning lines>

<black display for backlight OFF>

FIG. 23D

<Fourth sub-field>



<Writing end of first signal to pixels
on $(Gt/2+1)$ th to Gt -th scanning
lines>

<Writing black display signal to pixels
on first to $Gt/2$ -th scanning lines>

<Backlight is turned on and imaged
is displayed>

FIG. 24A

Signal line voltage

Image signal
Black signal

FIG. 24B

Voltage waveform of first scanning line

FIG. 24C

Voltage waveform of second scanning line

FIG. 24D

Voltage waveform of $(Gt/2)$ th scanning line

FIG. 24E

Voltage waveform of $(Gt/2+1)$ th scanning line

FIG. 24F

Voltage waveform of Gt -th scanning line

FIG. 24G

Voltage waveform of pixel on first scanning line

FIG. 24H

Voltage waveform of pixel on Gt -th scanning line

FIG. 24I

Lighting of backlight

ON
OFF

First signal writing period to pixels on $(1 \sim Gt/2)$ th scanning line

Second signal writing period to pixels on $(Gt/2+1 \sim Gt)$ th scanning line

1 frame period

Second signal writing period to pixels on $(1 \sim Gt/2)$ th scanning line

First signal writing period to pixels on $(Gt/2+1 \sim Gt)$ th scanning line

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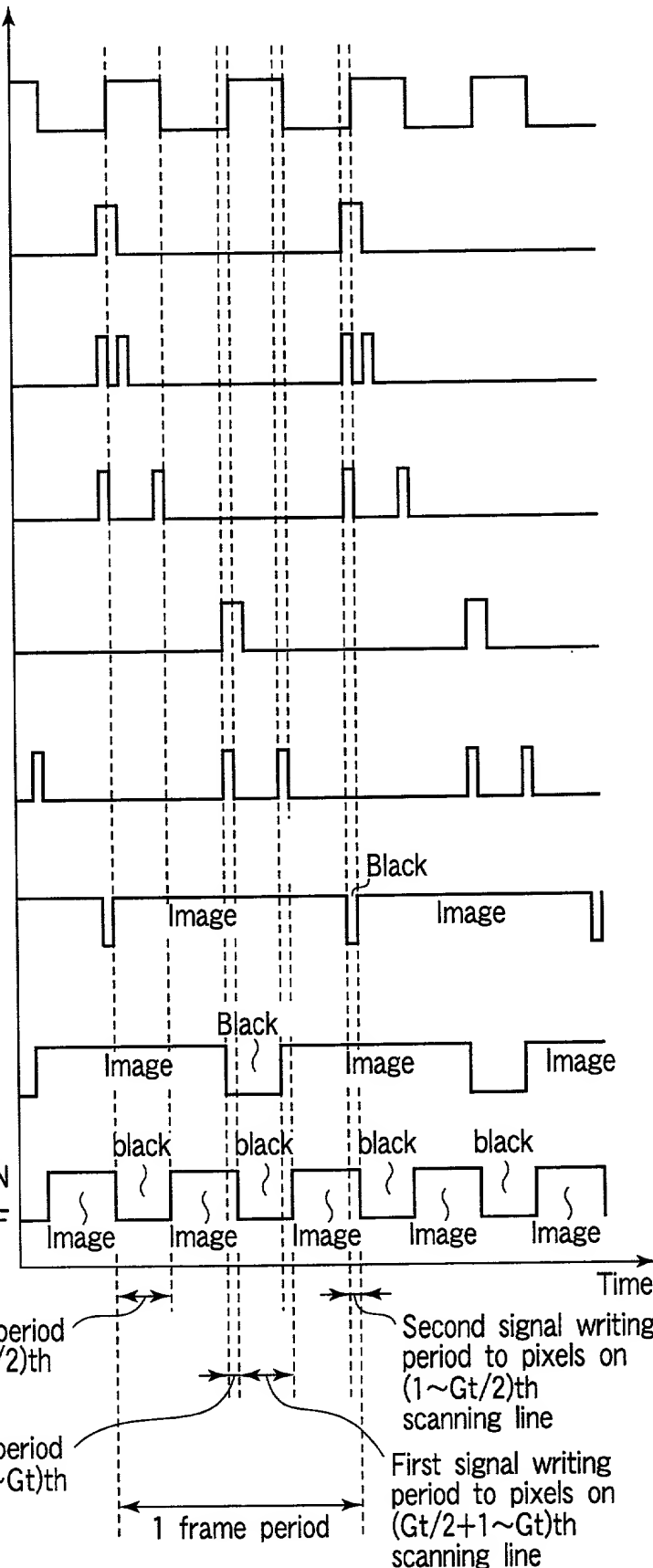


FIG. 25A

<First sub-field>

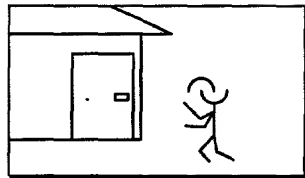


<Writing first signal to pixels on
first to $Gt/2$ -th scanning lines>

<Black display for backlight OFF>

FIG. 25B

<Second sub-field>



<Writing end of first signal to pixels
on first to $Gt/2$ -th scanning lines>

<Image is displayed by turning on
backlight>

There is a slight time gap between
image on $(Gt/2+1)$ th to Gt -th
scanning lines and image on first to
 $Gt/2$ -th scanning lines because
image on $(Gt/2+1)$ th to Gt -th
scanning lines is at previous frame
image

FIG. 25C

<Third sub-field>

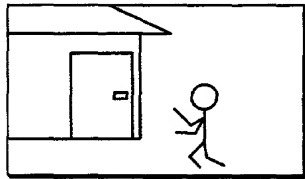


<Writing first signal to pixel on
 $(Gt/2+1)$ th to Gt -th scanning
lines>

<Black display for backlight OFF>

FIG. 25D

<Fourth sub-field>



<Writing end of first signal to pixels
on $(Gt/2+1)$ th to Gt -th scanning
lines>

<Backlight is turned on and imaged
is displayed>

There is no time gap between
image on $(Gt/2+1)$ th to Gt -th
scanning lines and image on first to
 $Gt/2$ -th scanning lines because
image on $(Gt/2+1)$ th to Gt -th
scanning lines is at same frame
image as on first to $Gt/2$ -th
scanning lines

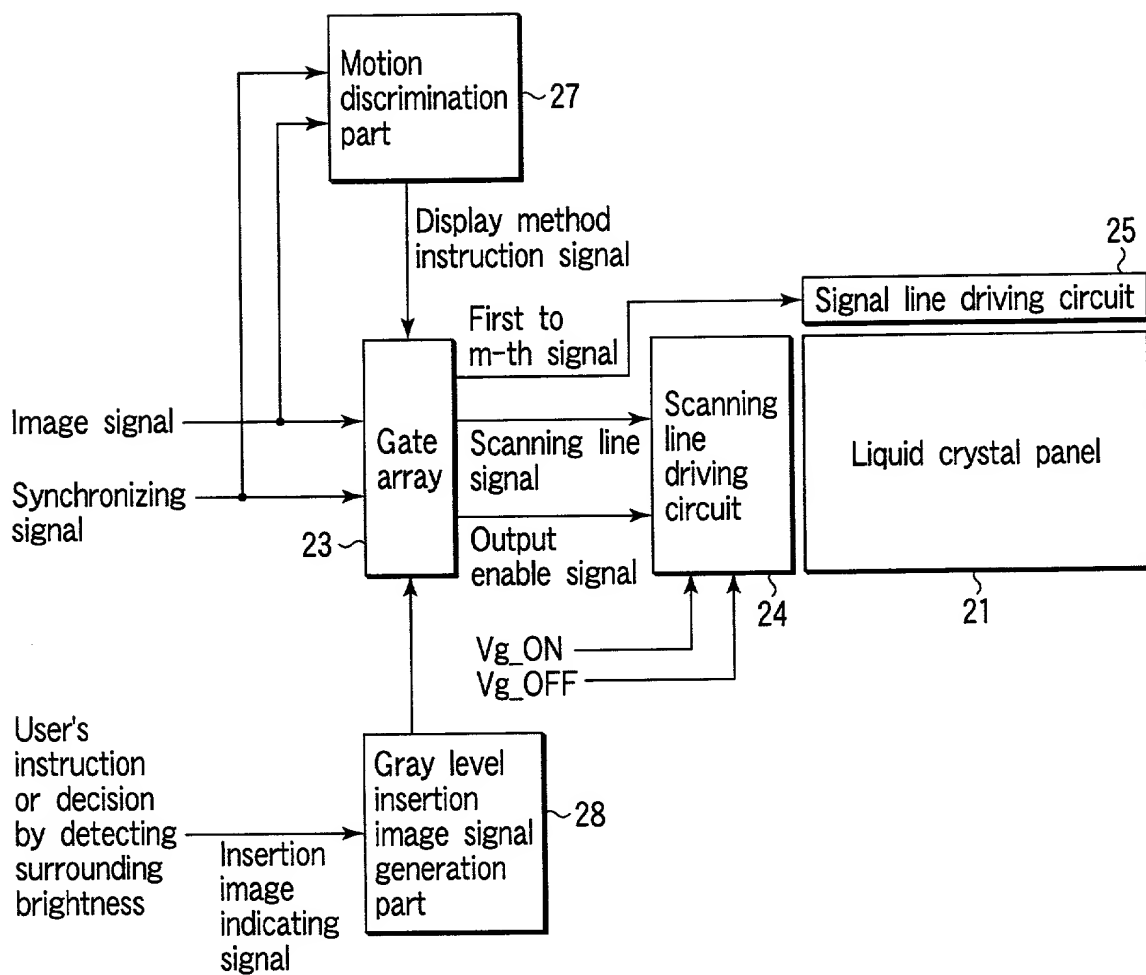


FIG. 26

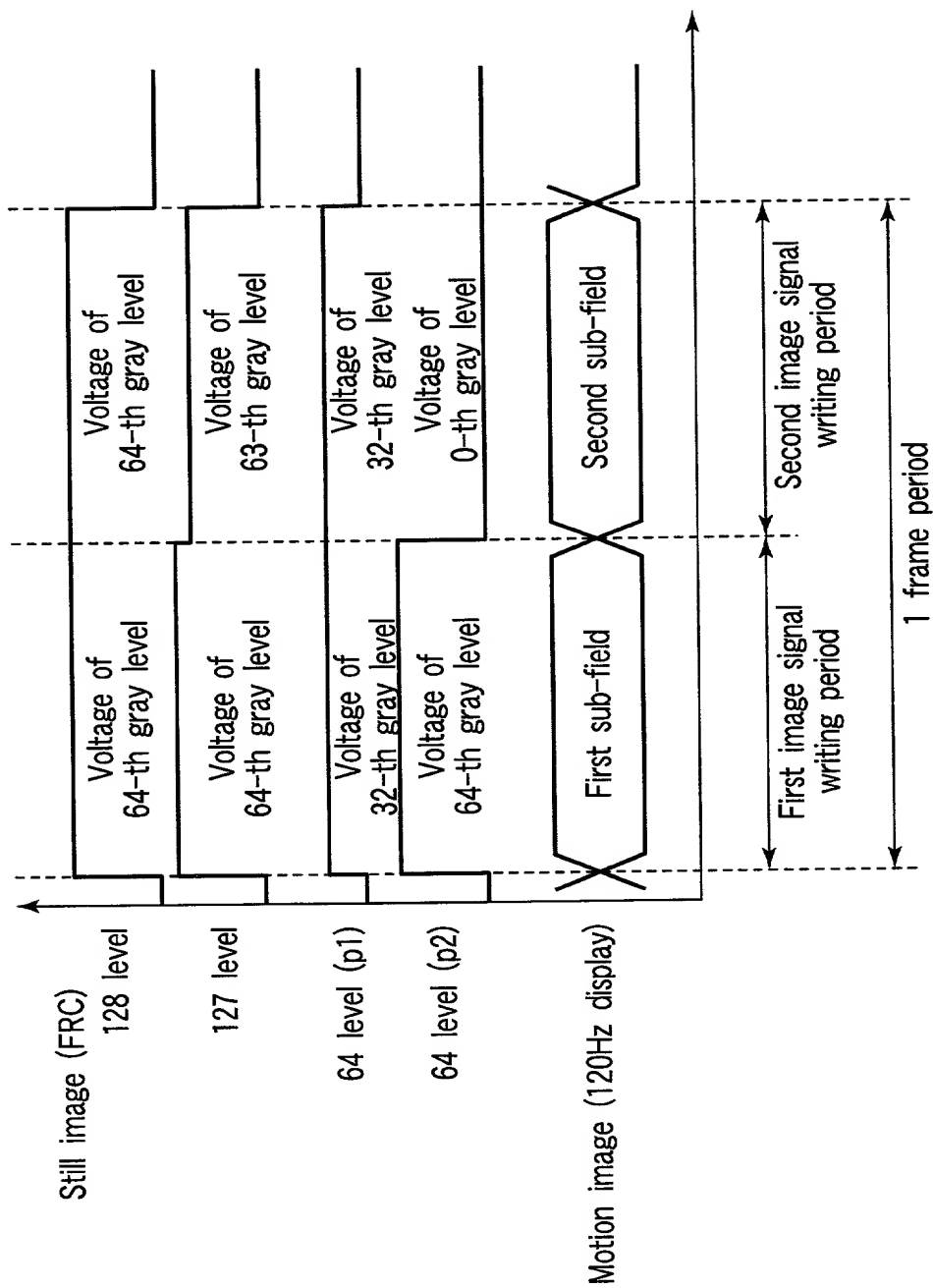


FIG. 27

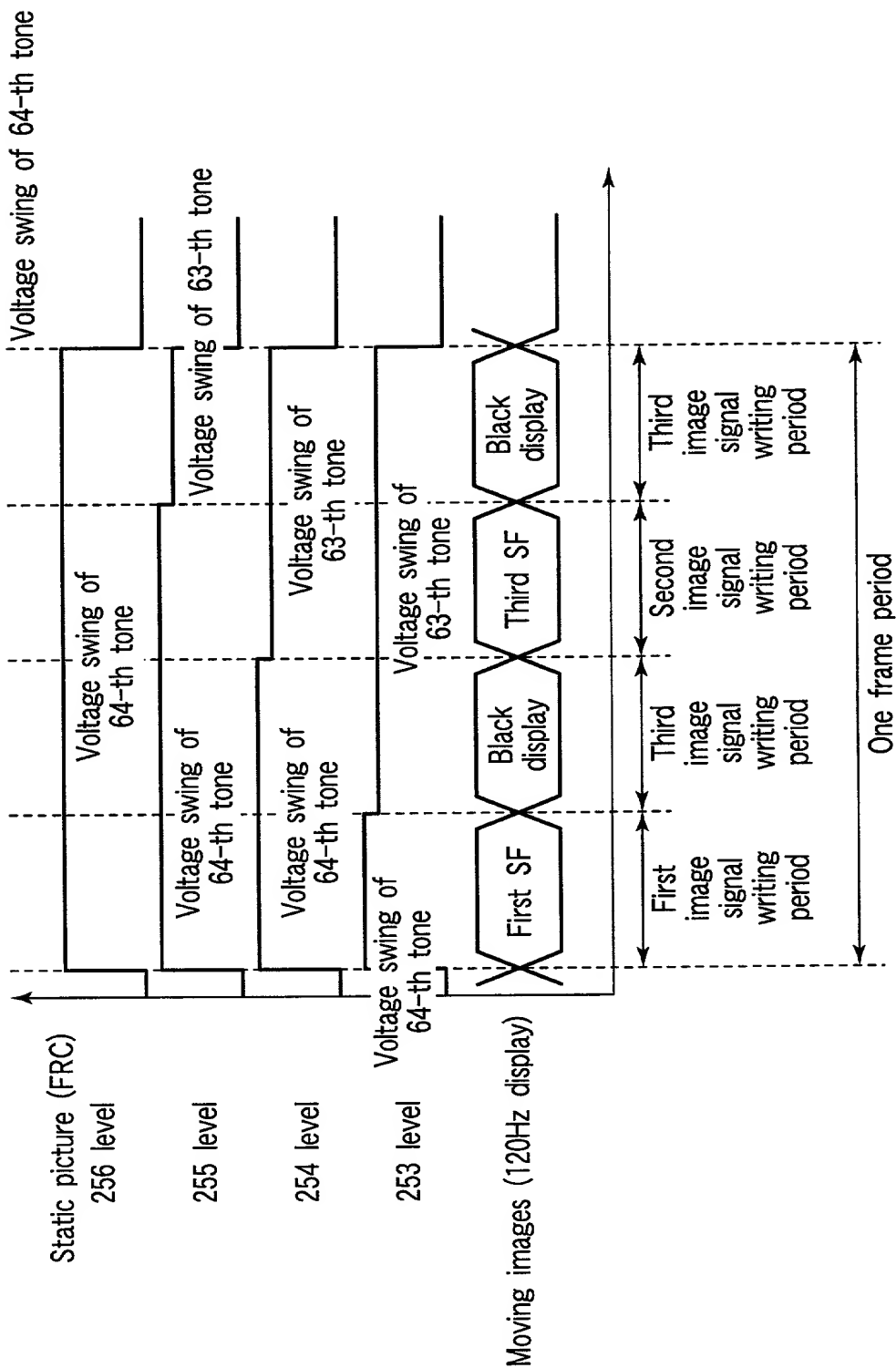


FIG. 28

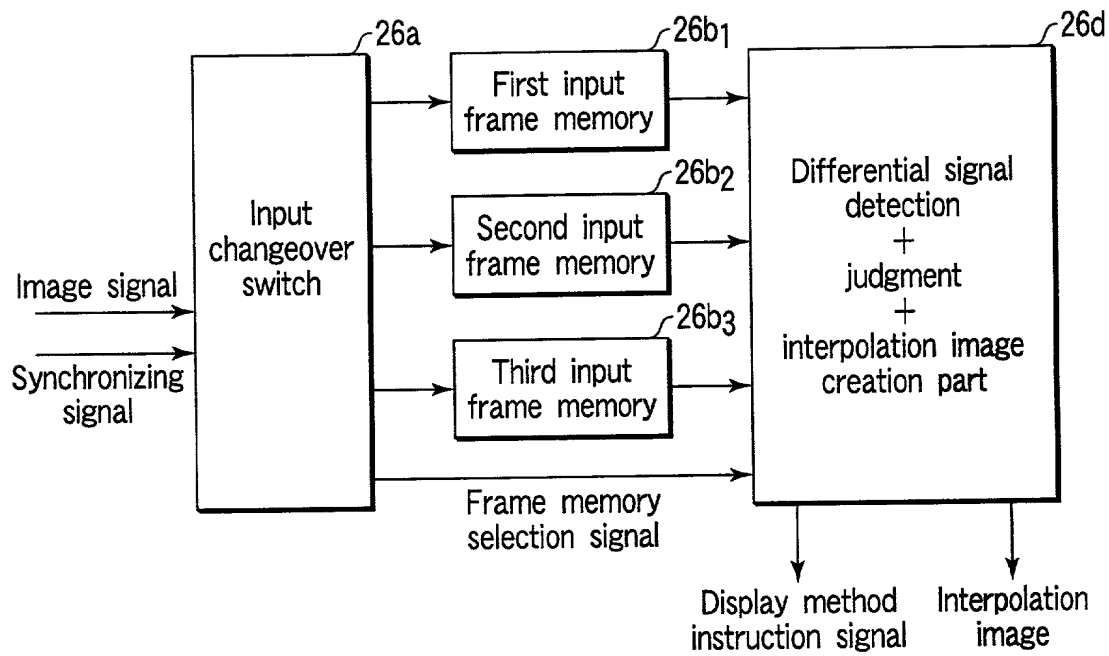


FIG. 29

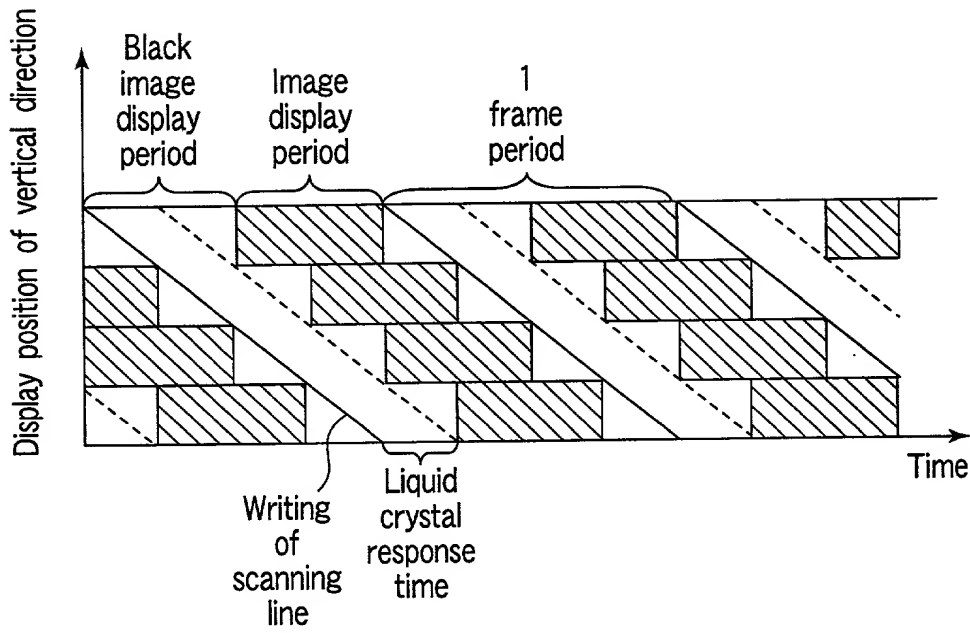


FIG. 31

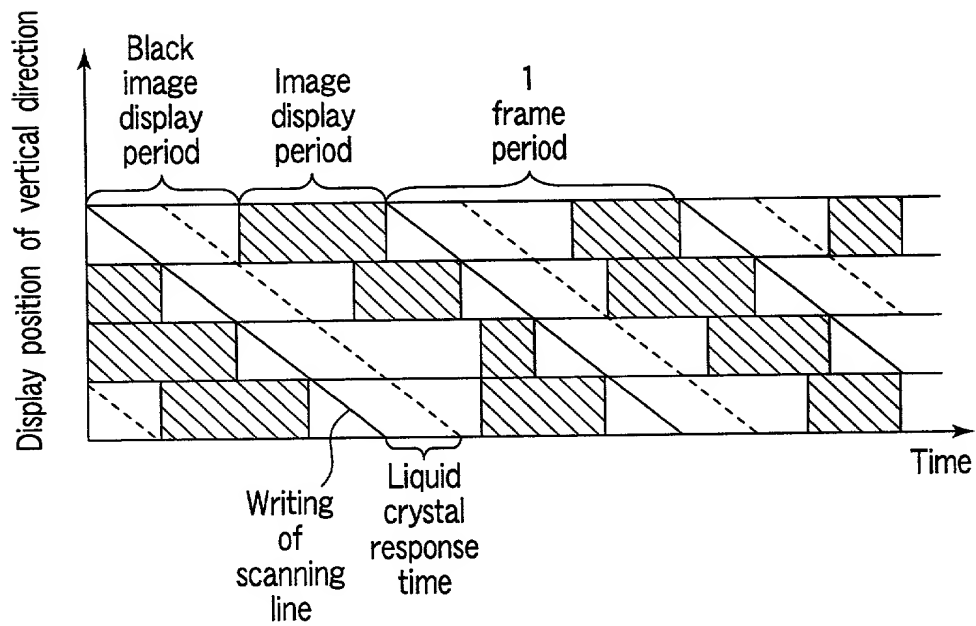


FIG. 32

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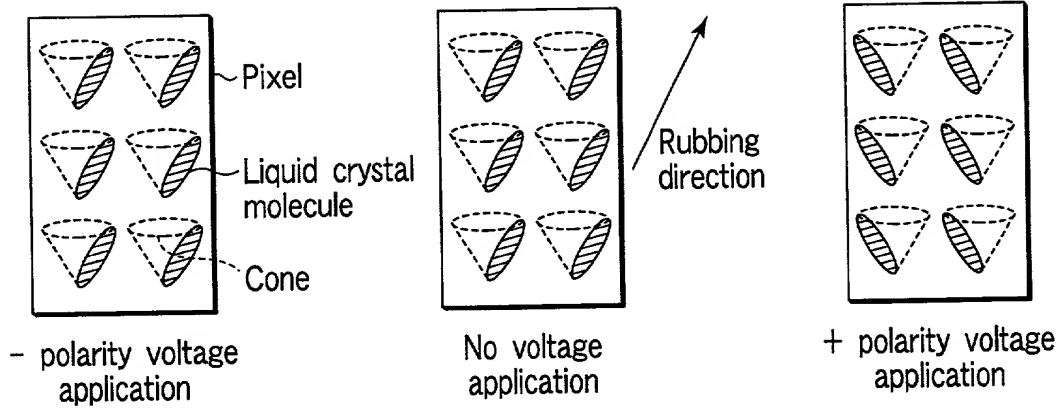


FIG. 33A

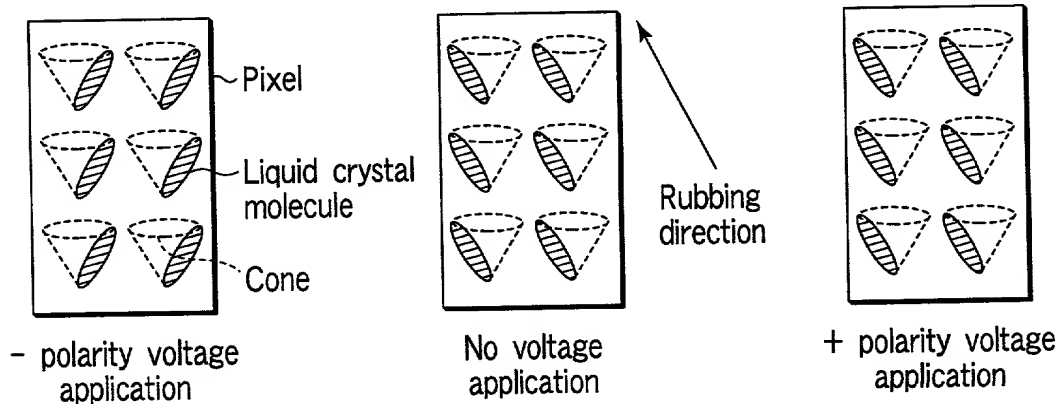
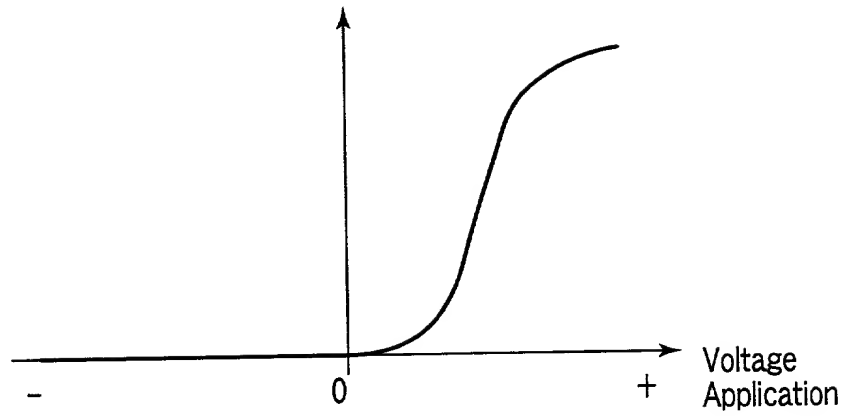
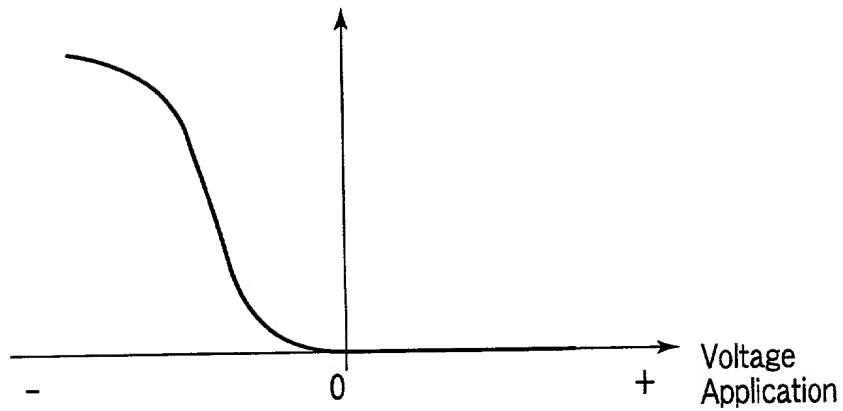


FIG. 33B



First alignment

FIG. 34A



Second alignment

FIG. 34B

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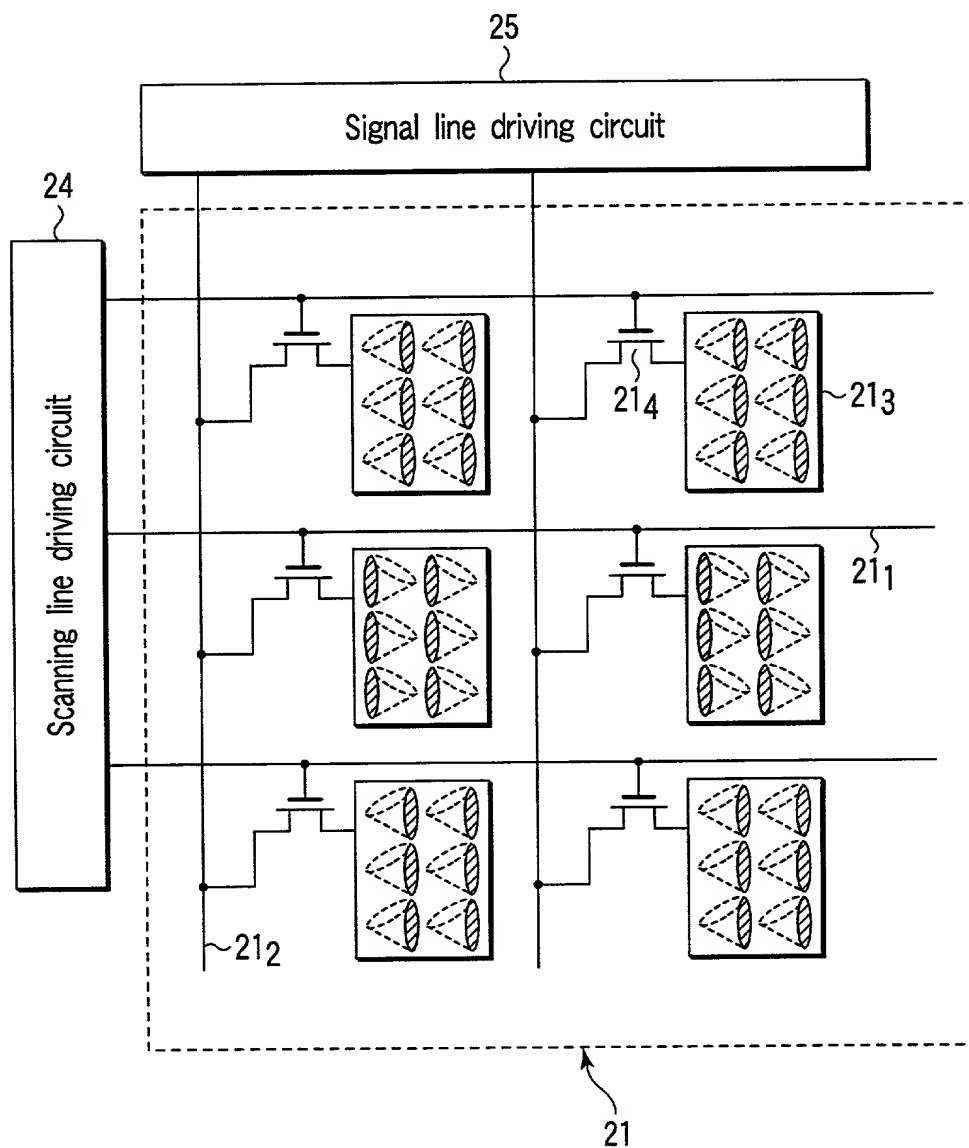


FIG. 35

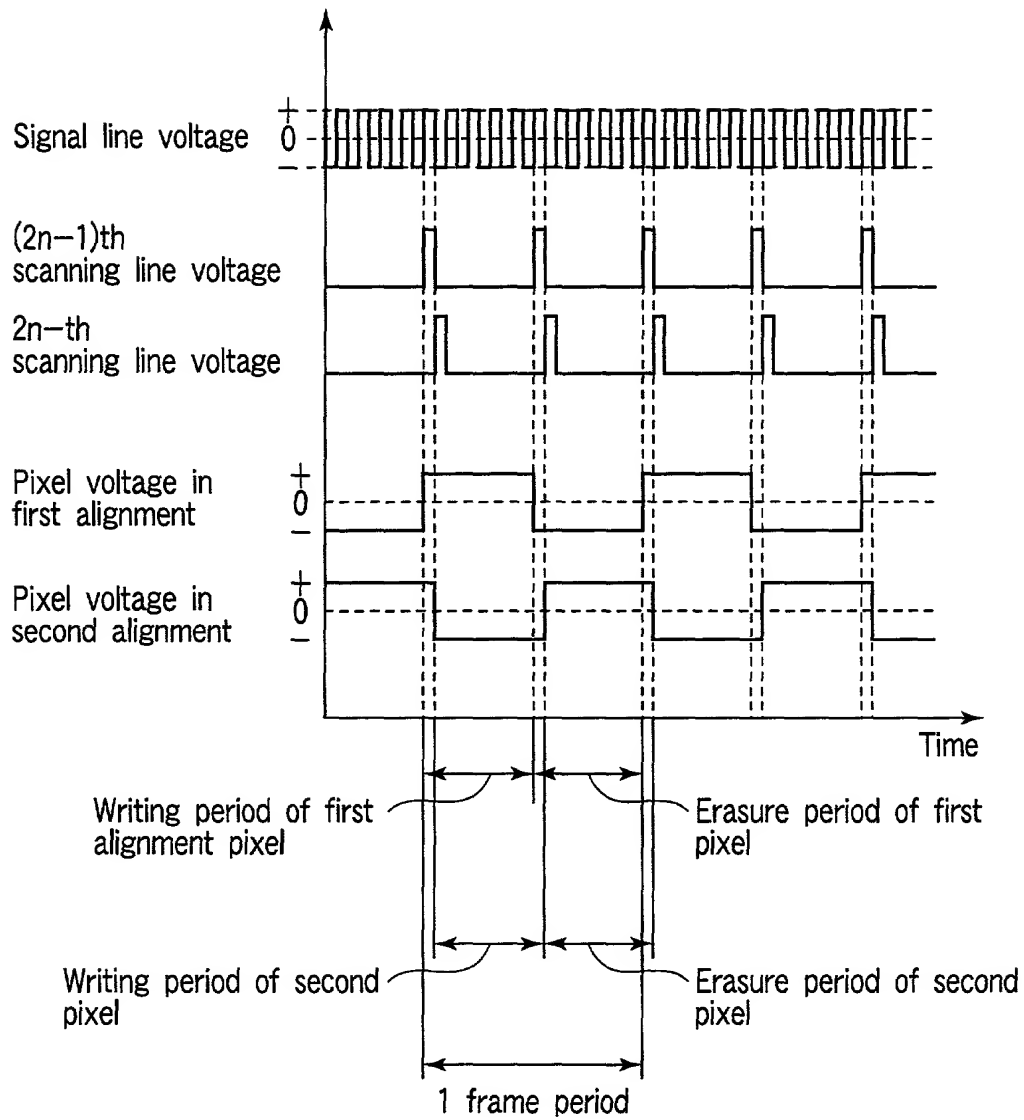
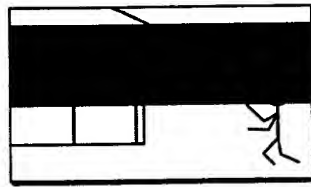


FIG. 36

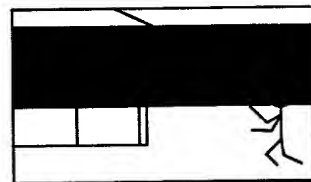
FIG. 37A



Writing of First scanning line;
signal is + polarity

First scanning line is in first and can be written in + polarity. Image of previous field remains at lower side of screen

FIG. 37B



Writing of Second scanning line;
signal is - polarity

Second scanning line is in second and can be written in - polarity

Time
↓

FIG. 37C

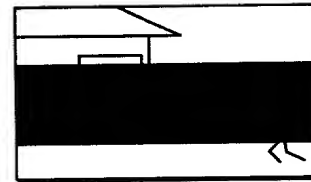
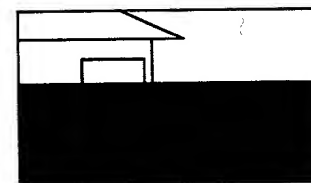


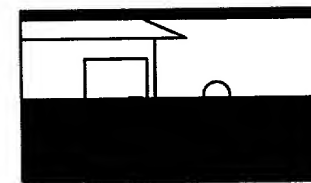
FIG. 37D



Writing of (T/2-1)th scanning line;
signal is + polarity

End of writing to upper half

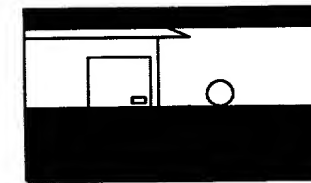
FIG. 37E



Writing of T/2-th scanning line;
signal is - polarity

First scanning line is turned on at same time. T/2-th scanning line is written in - polarity, and first scanning line is erased by - polarity

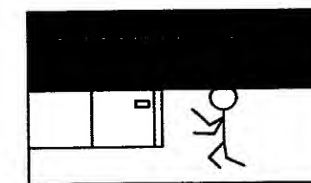
FIG. 37F



Writing of (T/2+1)th scanning line;
signal is + polarity

Second scanning line is turned on at same time. (T/2+1)th scanning line is written in + polarity, and second scanning line is erased by + polarity

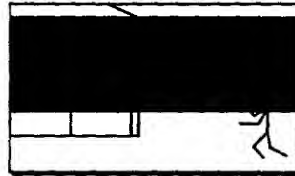
FIG. 37G



Writing of T-th scanning line;
signal is - polarity

(T/2+1)th scanning line is turned on at same time. Upper half of screen is erased

FIG. 38A



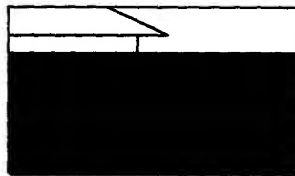
Writing of First scanning line;
signal is + polarity
Image of previous field remains at
lower quarter of screen

FIG. 38B



Time
↓

FIG. 38C



Writing of (T/4-1)th scanning line;
signal is + polarity
Upper quarter of screen is displayed

FIG. 38D



Writing of T/4-th scanning line;
signal is - polarity
First scanning line is erased

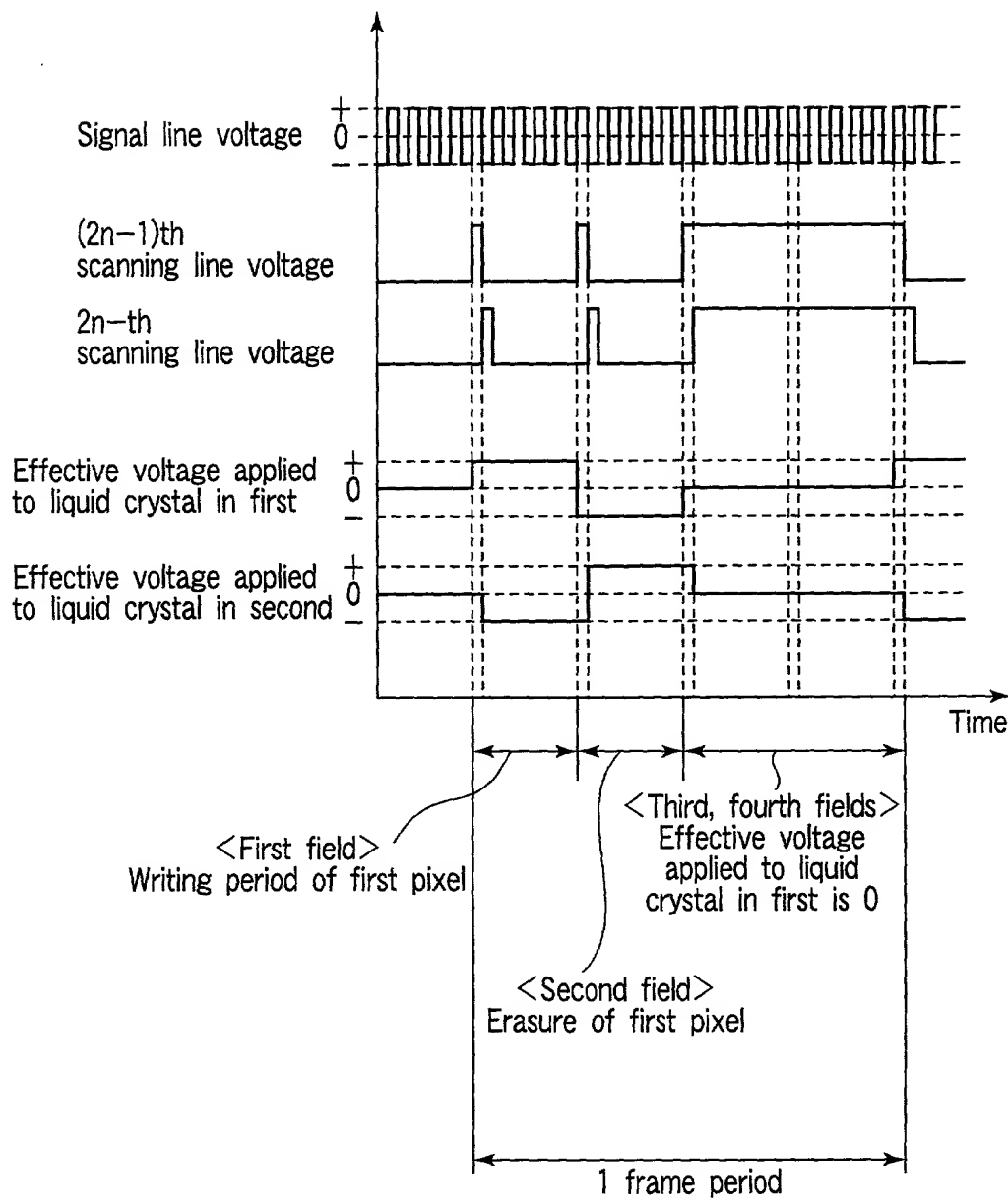


FIG. 39

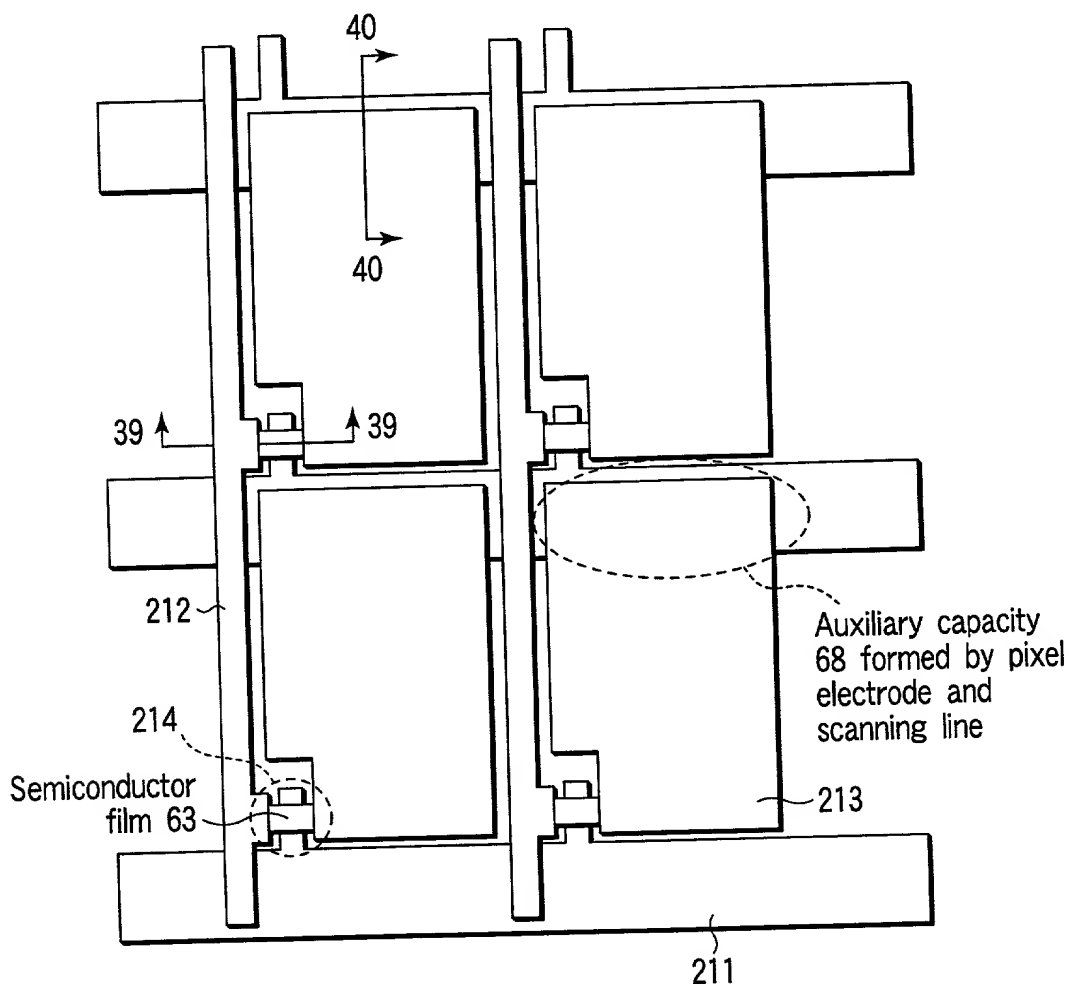


FIG. 40

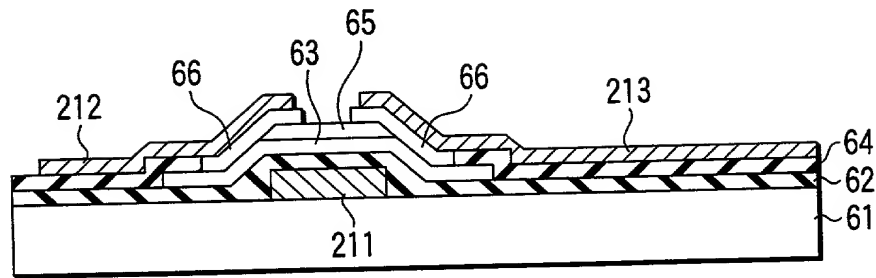


FIG. 41

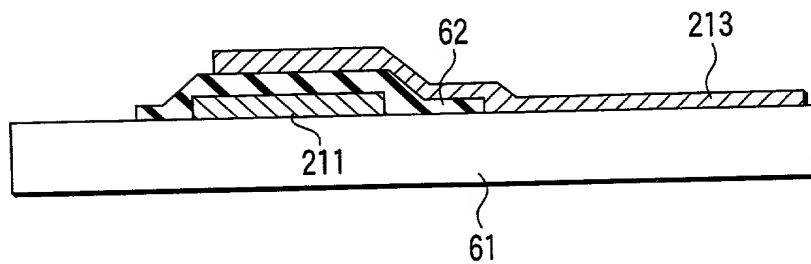


FIG. 42

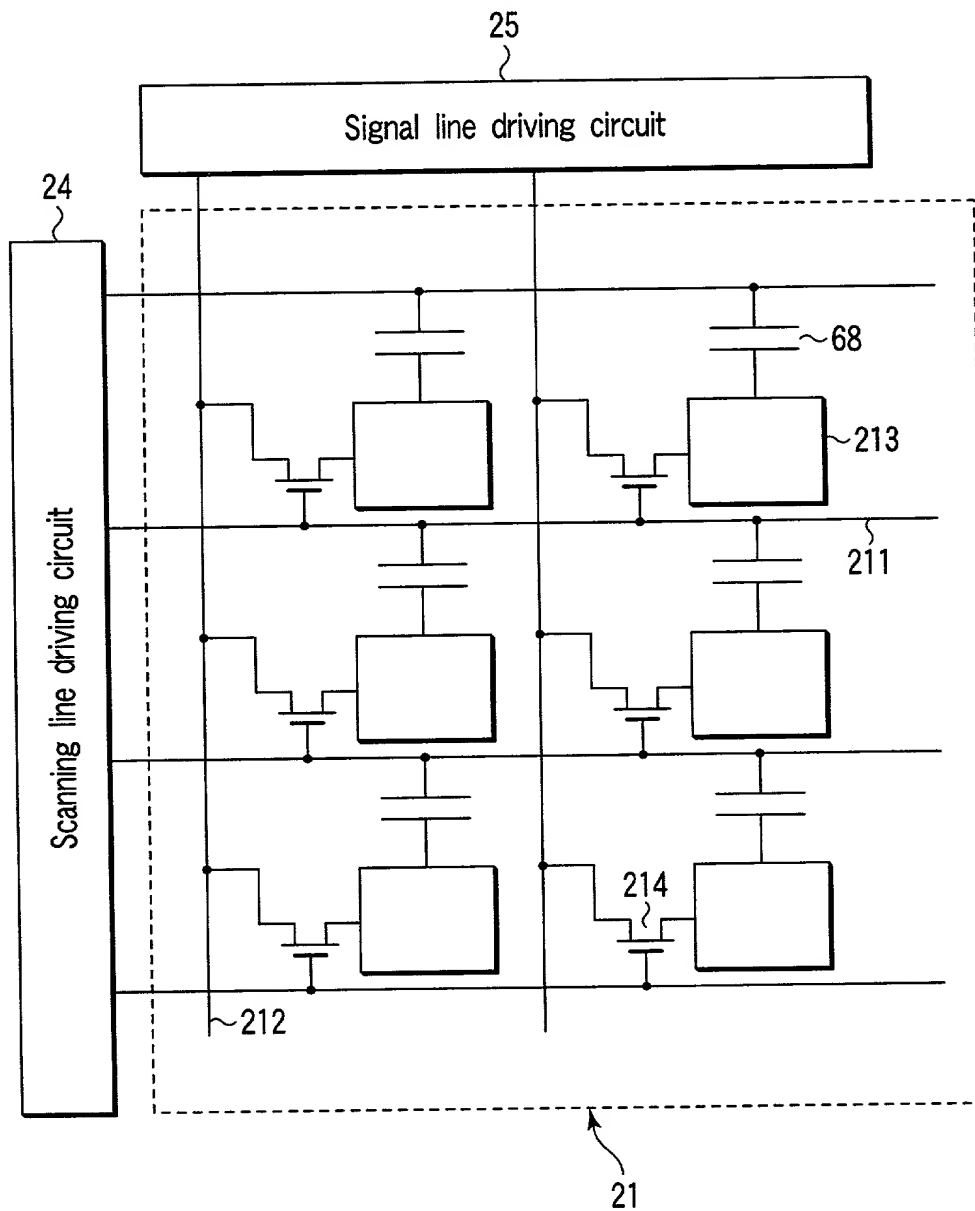


FIG. 43

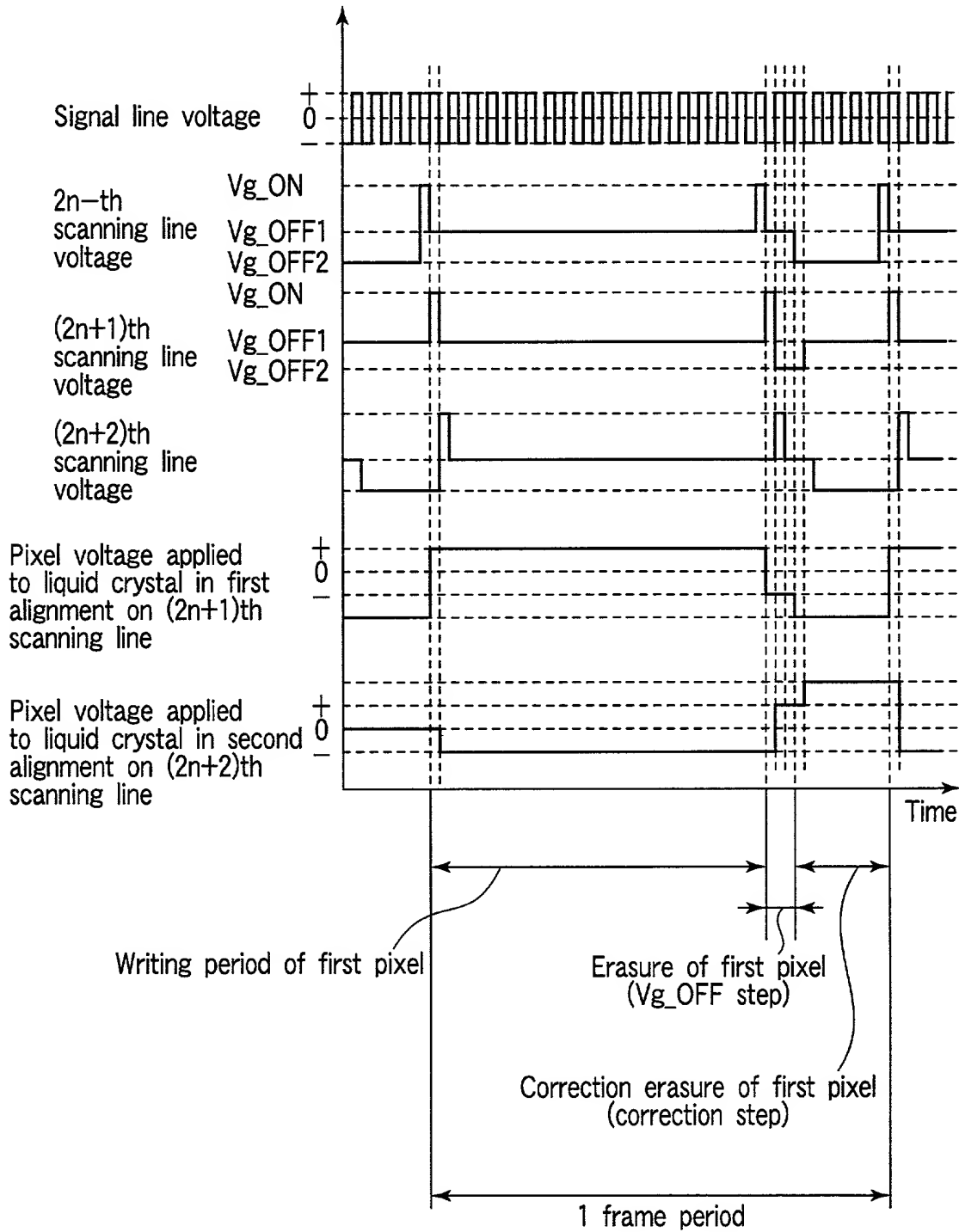


FIG. 44

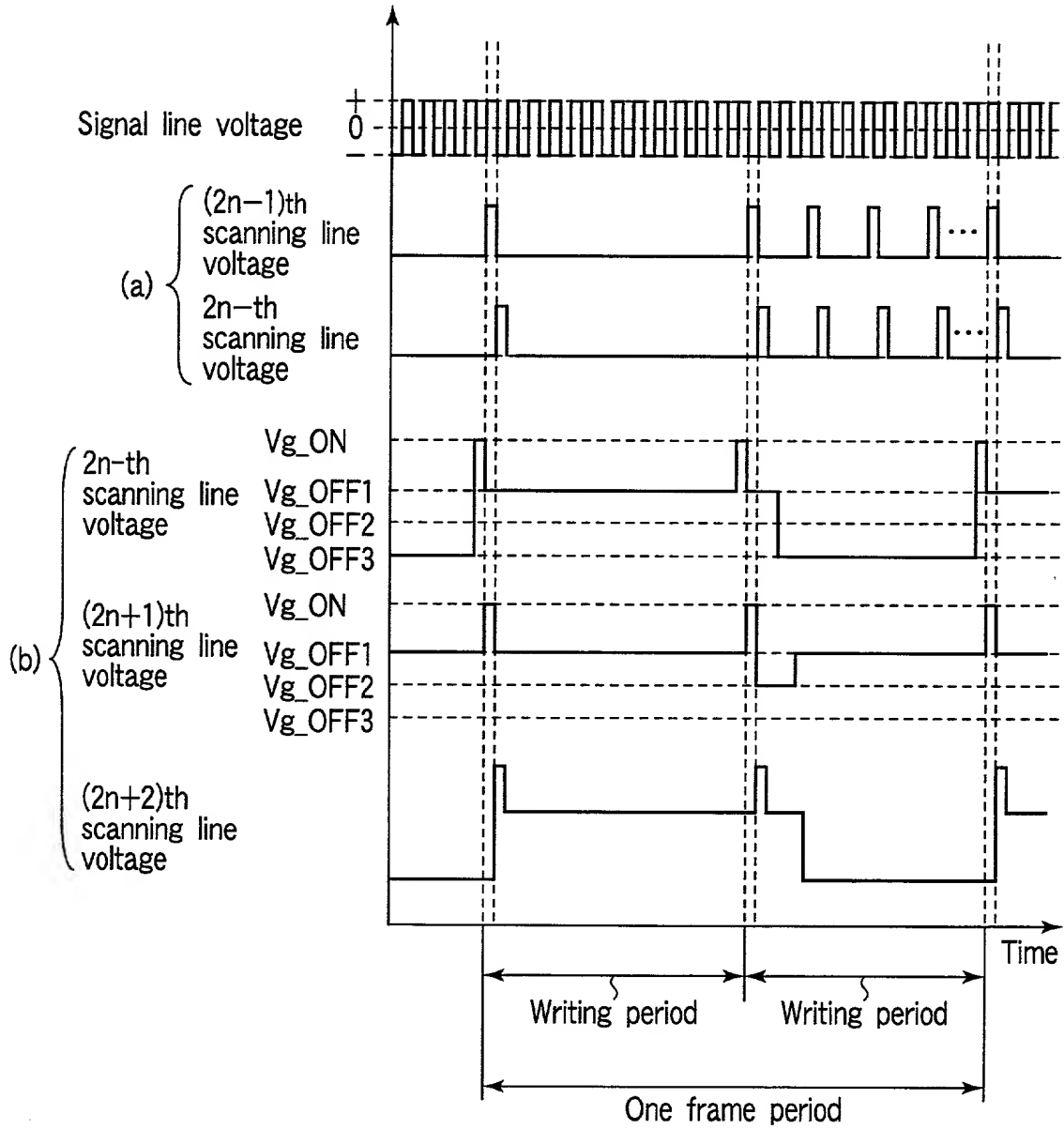


FIG. 45

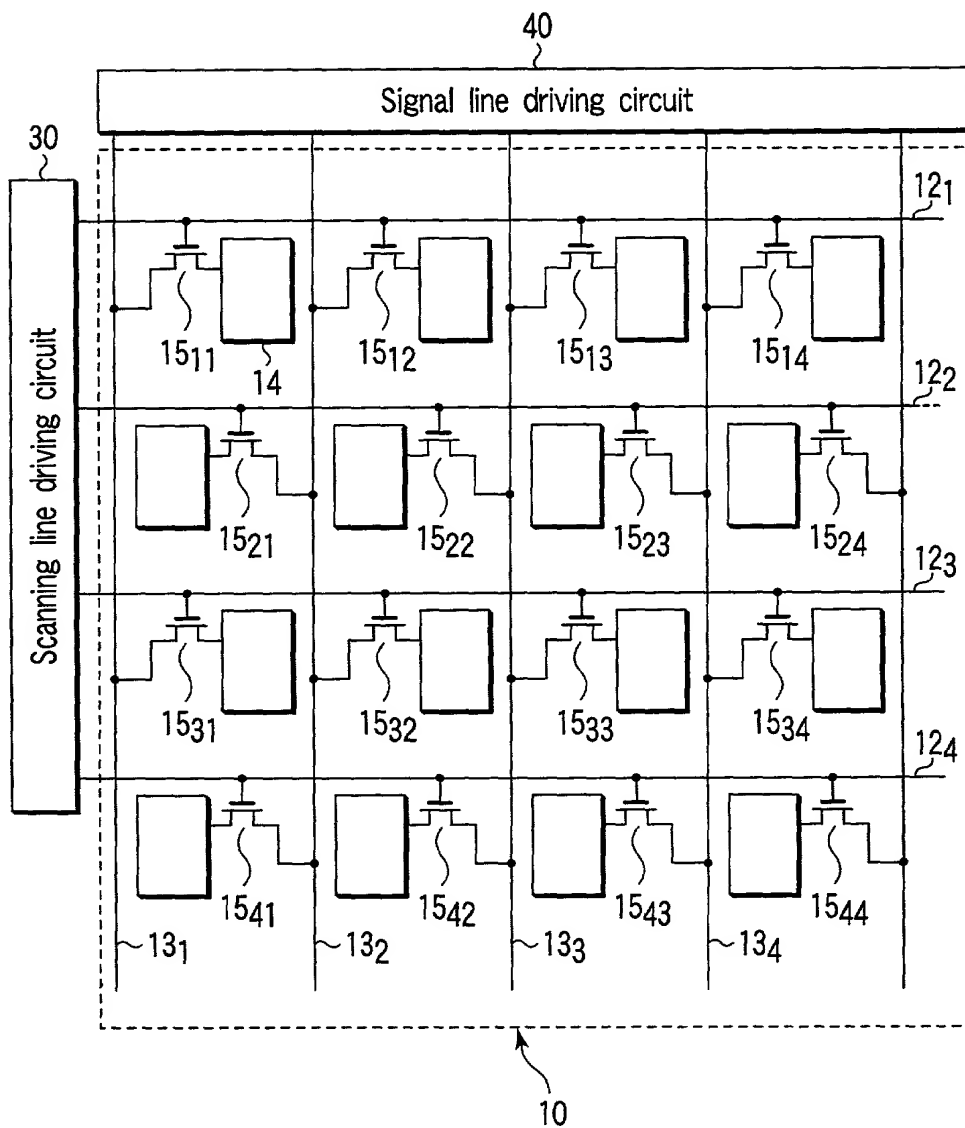


FIG. 46

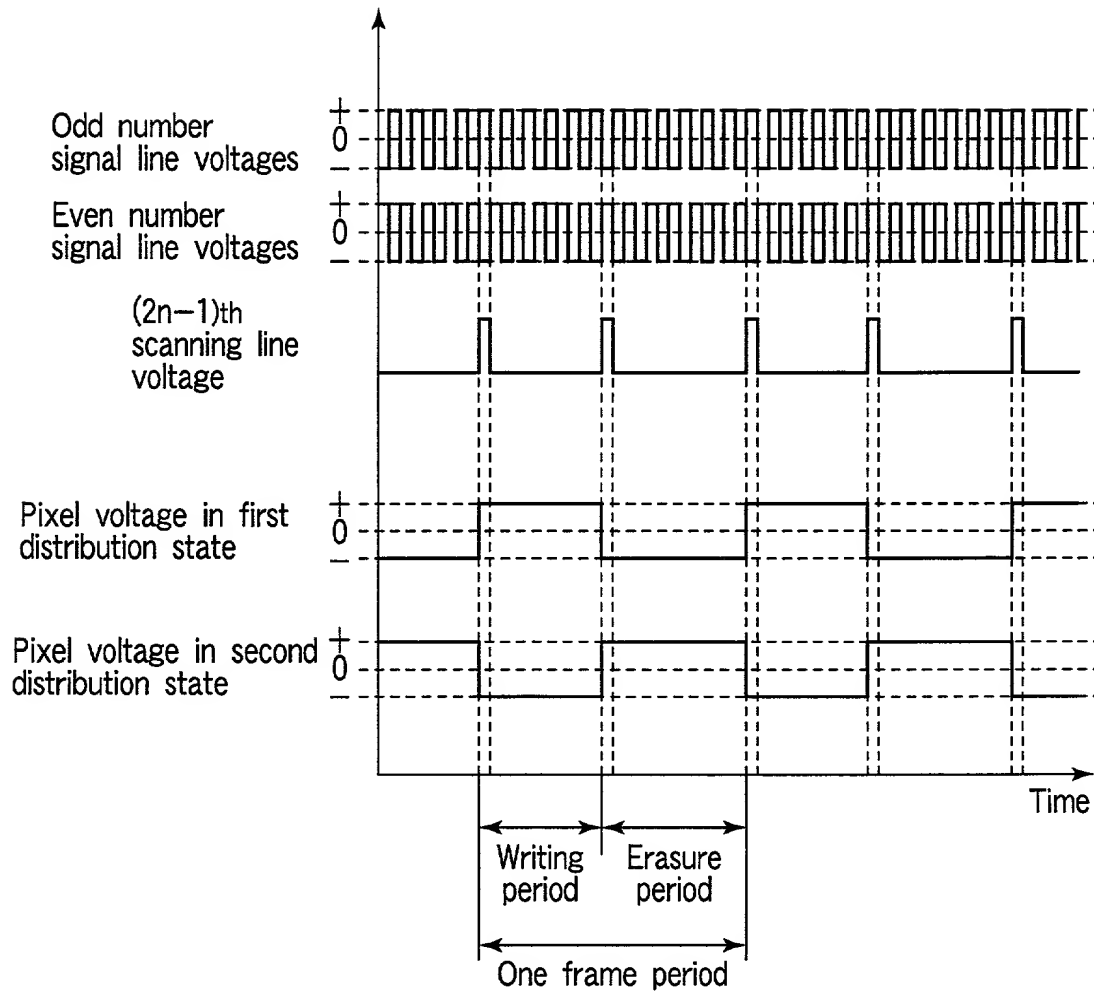


FIG. 47

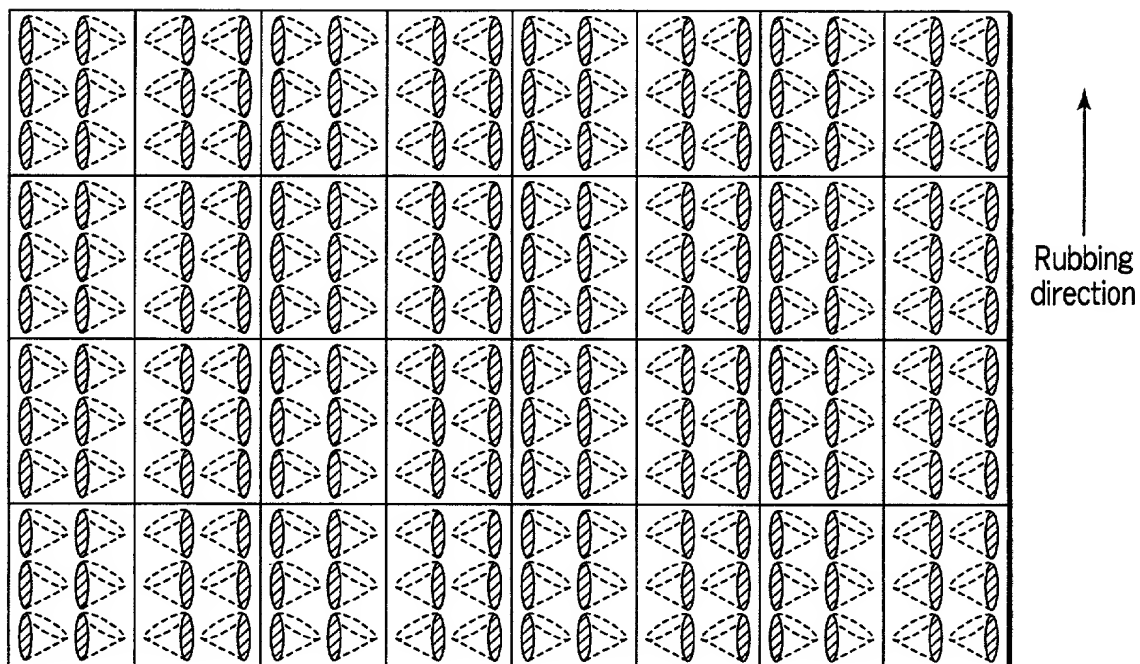


FIG. 48